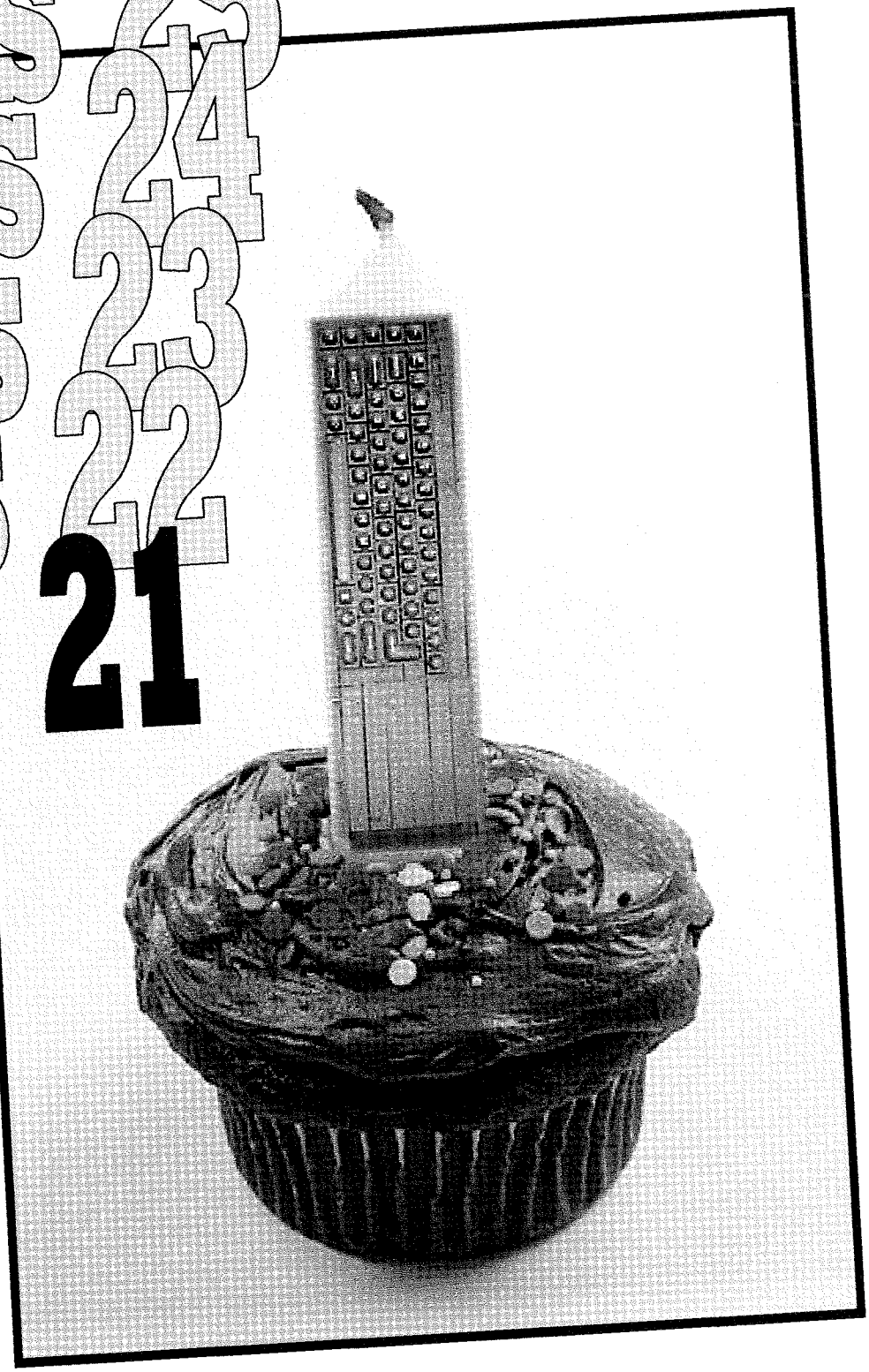
QL Today

Volume 10
Issue 2
Aug./Sept./Oct.
2005

ISSN 1432-5454

The Magazine about QL, QDOS, Sinclair Computers, SMSQ...

QL is 25
QL is 24
QL is 23
QL is 22
QL is 21



Contents

Advertisers
in alphabetical order

QL Today

ISSN 1432-5454

German office & Publisher:
Jochen Merz Software
Kaiser-Wilhelm-Str. 302
47169 Duisburg
Germany
Tel. +49 203 502011
Fax +49 203 502012
email: JMerz@j-m-s.com
email: QLToday@j-m-s.com

English office:
Q Branch
20 Locks Hill
Portslade
BN41 2LB
United Kingdom
Tel. +44 1273 386030
Mobile +44 7836 745501
Fax +44 1273 381577
email: qbranch@qbranch.demon.co.uk
email: QLToday@j-m-s.com

Editor:
Geoff Wicks
56 Peveril Crescent
West Hallam
Derbyshire DE7 6ND
United Kingdom
Tel. +44 115 9303713
email: gwicks@beeb.net
email: QLToday@j-m-s.com

Co-Editor:
Bruce Nicholls
38 Derham Gardens
Upminster
Essex RM14 3HA
United Kingdom
Tel +44 1708 510764
Fax +44 870 0568755
email: qltoday@q-v-d.demon.co.uk
email: QLToday@j-m-s.com

QL *Today* is published five times a year, our volume begins on beginning of June. Please contact the German or English office for current subscription rates or visit our homepage **www.QLTODAY.com**.

We welcome your comments, suggestions and articles. YOU make **QL *Today*** possible. We are constantly changing and adjusting to meet your needs and requirements. Articles for publication should be on a 3.5" disk (DD or HD) or sent via Email. We prefer ASCII, Quill or text87 format. Pictures may be in _SCR format, we can also handle GIF or TIF or JPG. To enhance your article you may wish to include Saved Screen dumps. PLEASE send a hardcopy of all screens to be included. Don't forget to specify where in the text you would like the screen placed.

QL *Today* reserves the right to publish or not publish any material submitted. Under no circumstances will **QL *Today*** be held liable for any direct, indirect or consequential damage or loss arising out of the use and/or inability to use any of the material published in **QL *Today***. The opinions expressed herein are those of the authors and are not necessarily those of the publisher.

This magazine and all material within is © copyright 2005 Jochen Merz Software unless otherwise stated. Written permission is required from the publisher before the reproduction and distribution of any/all material published herein. All copyrights and trademarks are hereby acknowledged.

Editorial

by Geoff Wicks

I dislike wearing hats. In fact it would not be unfair to call me an incorrigible hoodie. But when I go to QL shows these days I am never sure which hat I am wearing.

This issue of QL Today will be released at the QL is 21 show and I have more hats to wear on this occasion than usual. Do I go as a trader; a Quanta committee member; a show organisor; activity presenter; QL Today editor; or as paparazzo? It was all much simpler 5 years ago when Quanta held its last major show, also in Portsmouth, and I went simply as a trader.

The QL community has become smaller since those days, but probably not as small as many feared. All the traders who advertised in the QL2000 show flier are still around, although some are now less active. Five years ago many felt the future of Quanta was in doubt unless it became a multi-computer platform. Quanta is now smaller, but has largely stemmed the huge losses in membership and cut its running costs so that you no longer hear talk of selling out to other computer systems. QL Today was then in its 5th and now in its 10th publishing year. It has survived longer than any other QL publication with the exception of the Quanta Magazine.

There have been changes. In 2000 the Q40 was at the forefront of QL development and the Windows version of QPC still the new kid on the block. Now probably over half of us use QPC2 as our main QL platform. With the notable exception of the Q60, hardware has not flourished in the last five years. Software is doing much better and we are at last seeing the fruits of the new colour and sound possibilities.

Email and internet access was a main theme of QL2000 and both have played an important role in keeping the QL alive, but not, alas, via the QL. Although it is now possible to access the internet from most QL platforms, as Phoebus Dokos has described in some detail in QL Today, we are still a long way from user friendly QL internet and email software.

Looking ahead, we can expect the QL to continue developing and QL Today will keep up with these changes. Yet if we concentrate too much on new software developments, we can lose touch with readers whose interest is mainly in hardware or who still prefer the simplicity of the old black box. Keeping the right balance is our greatest challenge.

Cartoon

by Roy Wood

He said my punishment was to re-install Windows for eternity!

Lexicons and QTYP Dictionaries

Dilwyn Jones writes:

I've just added a large collection of QTYP spell-checker dictionaries to the Dictionaries page on my web site at

http://www.dilwyn.uk6.net/index.html

along with a few Lexicons, mostly for Celtic languages (Welsh, Irish and Scottish Gaelic, Manx and Breton). These Lexicons are mostly in plain text format, while the QTYP lists are in pure QTYP dictionary format.

The Lexicons are like traditional printed dictionaries on the whole. There's a list of them below. There are many more, and they will be added as time allows. I've included a little 2,500 entry Pocket English dictionary as well as the Celtic language ones I've already converted.

The Lexicons include:

Welsh/English dictionary
Irish Gaelic/English dictionary
Scottish Gaelic/English dictionary
English/Manx language dictionary
Breton/English dictionary
English language pocket dictionary

The QTYP files have been compiled from internet based word lists and from PD/Shareware CD-ROMs, plus a few freeware QL-original dictionaries e.g. from national user group freeware collections in Europe.

Using something like Geoff Wicks' QTYP Expand routine elsewhere on my web site, QTYP owners can extract the word lists from these as plain text files quite easily, e.g. if you want to port them for use on other computers, or adapt them for use with other QL software. In their present format, once unzipped they can be used with QTYP and related applications like Spellcrib.

Due to the sheer size of the expanded plain text versions, I won't be putting them on my web site since I doubt that the anticipated low demand will not make it worthwhile committing such a lot of web space to them. I am keeping the plain text dictionaries on my hard disk as part of the PD Library and would be able to supply them as a QXL.WIN CD-R for example.

Below is a list of filenames, download size in brackets, language, number of words in each dictionary (as reported by QTYP_DED dictionary editor) and the actual size of the QTYP dictionary when unzipped. The plain text wordlists extracted from these dictionaries will generally be much larger, because QTYP applies some compression.

Obviously if anyone has more QTYP dictionaries I would be pleased to add them to the collection. Of all the QTYP language dictionaries I was able to locate, the one I want isn't among them - Welsh. If anyone can find a Welsh word list of suitable size for a spell checker (20,000+ words) on the web I would be very happy to receive a copy! All the ones I've been able to find are either too small or in a format I can't decode.

Here's the list of QTYP dictionaries uploaded. I'd like to acknowledge the help of Robert Newson in decoding some of these files - he found an invaluable source of information on the file formats.

FILENAME	LANGUAGE	WORDS	UNZIPPED LENGTH
qtyp_danish25k.zip (52K)	Danish	25,191	77,452 bytes.
qtyp_dutch47k.zip (99K)	Dutch	47,698	153,195 bytes.
qtyp_dutch72k.zip (134K)	Dutch	72,645	183,061 bytes.
qtyp_dutch177k.zip (225K)	Dutch	177,799	438,466 bytes.
qtyp_french89k.zip (43K)	French	89,151	189,304 bytes.
qtyp_french136k.zip (77K)	French	136,560	284,936 bytes.
qtyp_german25k.zip (63K)	German	25,907	87,615 bytes.
qtyp_german48k.zip (64K)	German	48,180	119,221 bytes.
qtyp_german82k.zip (78K)	German	82,068	115,156 bytes.
qtyp_italian21k.zip (34K)	Italian	21,691	43,614 bytes.
qtyp_italian46k.zip (66K)	Italian	46,339	128,736 bytes.
qtyp_italian60k.zip (36K)	Italian	60,418	142,311 bytes.
qtyp_italian87k.zip (81K)	Italian	87,245	217,952 bytes.
qtyp_latin77k.zip (35K)	Latin	76,990	155,904 bytes.
qtyp_norwegian61k.zip (97K)	Norwegian	61,652	155,339 bytes.
qtyp_portuguese38k.zip (69K)	Portuguese	38,294	132,085 bytes.
qtyp_spanish86k.zip (142K)	Spanish	86,056	264,174 bytes.

typ_swedish23k.zip(40K)	Swedish	23,482	68,368 bytes.
qtyp_UKenglish11K.zip(22K)	English(UK)	11,701	26,955 bytes.
qtyp_UKenglish20k.zip(47K)	English(UK)	21,110	61,650 bytes.
qtyp_UKenglish25K.zip(54K)	English(UK)	25,085	70,613 bytes.
qtyp_UKenglish29K.zip(44K)	English(UK)	29,855	58,071 bytes.
qtyp_UKenglish35K.zip(56K)	English(UK)	35,520	72,282 bytes.
qtyp_UKenglish48k.zip(79K)	English(UK)	48,859	104,014 bytes.
qtyp_UKenglish55K.zip(73K)	English(UK)	55,403	98,114 bytes.
qtyp_UKenglish60k.zip(71K)	English(UK)	60,387	100,043 bytes.
qtyp_UKenglish70k.zip(99K)	English(UK)	70,762	134,872 bytes.
qtyp_UKenglish72K.zip(99K)	English(UK)	72,041	135,237 bytes.
qtyp_UKenglish75k.zip(105K)	English(UK)	75,000	143,018 bytes.
qtyp_UKenglish82k.zip(119K)	English(UK)	82,060	161,039 bytes.
qtyp_UKenglish93k.zip(128K)	English(UK)	93,386	175,044 bytes.
qtyp_UKenglish108k.zip(150K)	English(UK)	108,917	206,163 bytes.
qtyp_UKenglish115k.zip(159K)	English(UK)	115,904	218,333 bytes.
qtyp_UKenglish125k.zip(197K)	English(UK)	125,909	268,359 bytes.
qtyp_UKenglish147k.zip(219K)	English(UK)	147,321	300,635 bytes.
qtyp_UKUSAenglish300K.zip(509K)	English(UK+USA)	308,079	718,279 bytes.
qtyp_USAenglish21k.zip(47K)	English(USA)	21,110	61,649 bytes.
qtyp_USAenglish35k.zip(63K)	English(USA)	35,475	86,935 bytes.
qtyp_USAenglish39K.zip(52K)	English(USA)	39,213	69,213 bytes.
qtyp_USAenglish48k.zip(71K)	English(USA)	48,292	94,246 bytes.
qtyp_USAenglish61k.zip(81K)	English(USA)	61,336	110,200 bytes.
qtyp_USAenglish130k.zip(165K)	English(USA)	130,792	234,467 bytes.
qtyp_USAenglish235K.zip(445K)	English(USA)	234,236	638,624 bytes.

Once unzipped, the dictionary filenames are the same as the zipped copies, but without the .zip suffix, e.g. QTYP_portuguese38k.zip contains qtyp_portuguese38k. Rename these as required, or configure QTYP to use whichever dictionary you want.

TURBO and TurboPTR

George Gwilt writes:

A. TURBO - v5.01 and Turbo TK Code - v3.37

There are three enhancements to TURBO v5.01, relating to parameters to machine code extensions, stack size and error trapping.

Parameters
TURBO v5.01 allows parameters to machine code extensions to be passed by reference, so that the extension can return a value to that parameter. It also allows arrays, and slices of arrays, to be passed as parameters to machine code extensions.
If the program to be compiled contains the command TURBO_ref there is no restriction to the parameters which can be passed by value. However, such compiled programs can only run on SMSQ/E. The program will stop with the message "not implemented" unless system variables start with "SMSQ".

Programs compiled without the command TURBO_ref will run on all machines but all one-dimensional string parameters will be passed by value and not by reference.

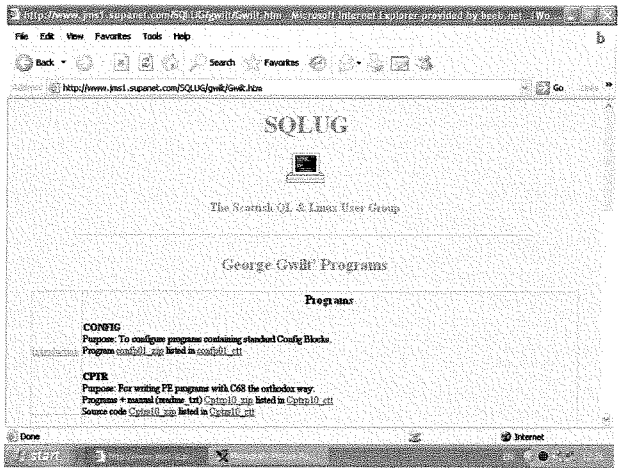
Stack Size
The standard stack size for compiled programs is 350 bytes. This is too small for some extensions, notably those in QPTR and in Qmenu. The stack size of a compiled program can be set by TURBO by configuring parser_task, by the command TURBO_objstk in the program to be compiled or from the front panel before compilation begins. The stack size in a compiled program can also be changed by using the program ADJ_DS.

Error Trapping
TURBO has always checked that requests for an array element do not exceed the top limit for any dimension. The latest version also checks that the requests are not negative for any dimension. Up to now a negative request causes the "element" to be accessed from outside the actual array, with unpredictable results.

Turbo TK Code
The new command TURBO_ref requires v3.37 of Turbo TK Code.

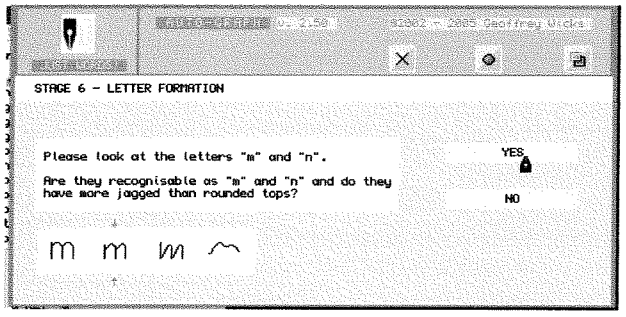
B. TurboPTR - SETW v6.06

Programs produced by TurboPTR have always been able to be resized using the PE software. The latest version of SETW, which produces window definitions for both TurboPTR (S*BASIC programs) and CPTR (C programs), allows the setting of 1/4, 1/2, 3/4 and the full amount of the resize value. Previously only the full amount was able to be set.
All of George Gwilt's programs can be downloaded from the SQLUG web site:
www.jms1.supanet.com



Just Words! News

The commercial programs QL-RYHMES and AUTO-GRAPH are now available in GD2 colours. With these releases the upgrading to GD2 is now complete. Upgrades to the commercial programs are free of charge on production of the master disk. Upgrades to the freeware range can be downloaded from the Just Words! web site:
http://members.lycos.co.uk/geoffwicks.justwords.htm



NOT Just Words! News

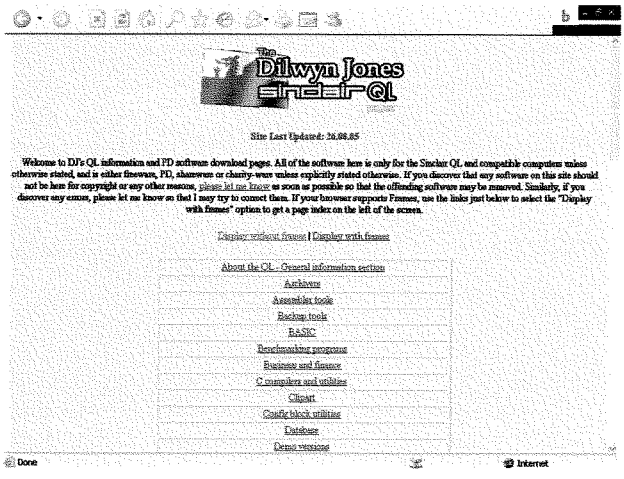
For psephologists the 2005 UK General Election analysis program can be downloaded from:
http://members.lycos.co.uk/geoffwicks/ election.htm
The site also contains the archive of all the UK General Elections from 1983 onwards. Each program is available in a pointer driven GD2 colour version or a non pointer QL colour version

Mark Knight News

Mark's Web site, which contains his revision of the QL program The Editor and its source code, and his art galleries and some free Bryce models to download, has now moved to:
http://www.the-furnace.talktalk.net
Mark's email address is now **FireAngel@talktalk.net**

DJ Web Site has moved

Dilwyn Jones writes:
At long last I've finished the migration of my **tesco.net** web site to the new Freeola UK6 web site. There will be a linking page from the old web site for a while.
Basically, I ran out of space on the Tesco.net web site, and I have ample space on the Freeola site, so everything is moving there. The Documentation site on Geocities stays there for now, but as there are links to it everywhere you shouldn't notice any change.
The content which used to be on the Tesco site now has its own section - About The QL/General Information - on the new site. Most people seem to be using the software download pages, so I gave that priority.
The new home page address is:
http://www.dilwyn.uk6.net/index.html
Please update your bookmarks accordingly.
All my email addresses, including **dilwyn.jones@tesco.net** and **djwebsite@tesco.net** remain the same.



QUANTA News

Major changes are expected in the Quanta Magazine in a response to a suggestion made by members at the 2003 AGM for the magazine to be made available in downloadable form. The

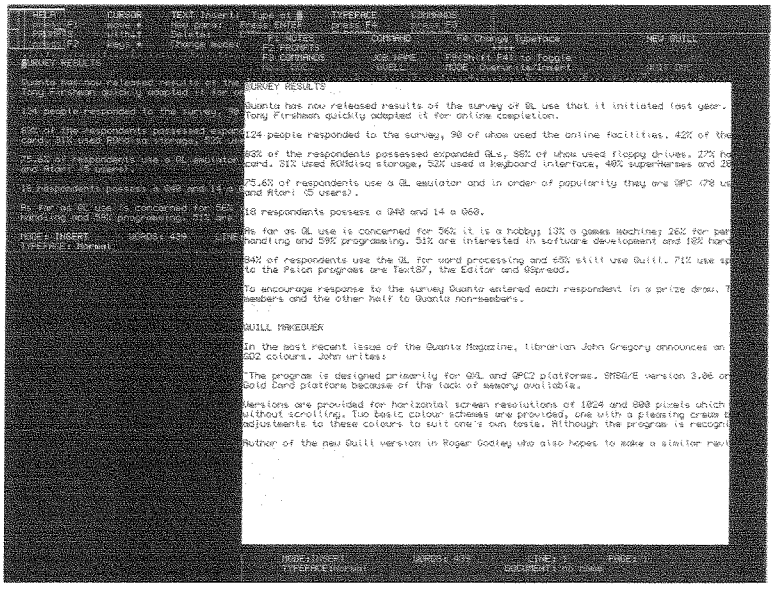
Quanta committee are investigating the feasibility of this, and in his annual report to the 2005 AGM Quanta Chairman, John Mason, announced a move from A4 to A5 format to facilitate downloading.
The magazine is currently produced in electronic form for transmission to the printer but the main stumbling block to downloading is the file size, which, for an average issue, is 2.5 to 3.5 Mb. The committee is looking at various means of reducing this file size including the possibility of producing the magazine in high resolution for the printer and low resolution for downloading. There are indications that it will be possible to reduce the file size to about 1Mb.
Although John Mason wrote the change would be cost neutral, the UK post office has since announced higher postal charges for A4 envelopes which could increase the postage costs by up to 40p per copy. In practice this means that about half of Quanta's members would have to opt for downloading to make the move economic.
In other Quanta News secretary, Sarah Gilpin, has announced her intention to publish précises of committee minutes in the magazine. There are also plans to update the Welcome Guide and rename it the "Members Guide". Quanta has provisionally fixed the weekend 8th/9th April for the 2006 AGM to be held at a venue in the north of England.

Survey Results

Quanta has now released results of the survey of QL use that it initiated last year. The survey was first published in the Quanta Magazine in October 2004, and Tony Firshman quickly adapted it for online completion.
124 people responded to the survey, 90 of whom used the online facilities. 42% of the replies were from non-Quanta members.
83% of the respondents possessed expanded QLs, 88% of whom used floppy drives. 27% had an Aurora card, 47% a Super Gold card, 20% a Gold Card and 20% a Trump card. 31% used ROMdisq storage, 52% used a keyboard interface, 40% superHermes and 28% Hermes. 49% have a hard drive and 34% a cased QL.
75.6% of respondents use a QL emulator and in order of popularity they are QPC (70 users), uQLx (22 users), QXL (18 users), Qemulator (17 users), QLAY (7 users) and Atari (5 users).
18 respondents possess a Q40 and 14 a Q60.
As far as QL use is concerned for 56% it is a hobby; 13% a games machine; 26% for personal correspondence; 24% other writing; 19% business use; 25% data handling and 59% programming. 51% are interested in software development and 18% hardware development.
84% of respondents use the QL for word processing and 65% still use Quill. 71% use spreadsheets and in most case this is Abacus. The most popular alternatives to the Psion programs are Text87, the Editor and QSpread.
To encourage response to the survey Quanta entered each respondent in a prize draw. The number of prizes has now been doubled with half available to Quanta members and the other half to Quanta non-members.

Quill Makeover

In the most recent issue of the Quanta Magazine, librarian John Gregory announces an interesting new acquisition to the library, namely a version of Quill using GD2 colours. John writes:
"The program is designed primarily for QXL and QPC2 platforms. SMSQ/E version 3.06 or higher is needed. The program is not very effective on the Aurora/Super Gold Card platform because of the lack of memory available.
Versions are provided for horizontal screen resolutions of 1024 and 800 pixels which makes it possible now to view up to 64 lines of a Quill document at once without scrolling. Two basic colour schemes are provided, one with a pleasing cream background and the other with a gray one. Facilities are provided to make adjustments to these colours to suit one's own taste. Although the program is recognisably Quill it has a pleasing modern feel to it." Author of the new Quill version in Roger Godley who also hopes to make a similar revision of Archive.



QL Today Content

by Geoff Wicks

In my editorial in the last issue I asked readers to tell us the subjects they would like to see in the magazine, and among the reactions we received was an email from a Greek user, Dr. M. Hanias:

"1) I think that the magazine could focus on some rare programs of Digital Precision such as Qmaths1 and 2, Professional Astrologer and Astronomer, C- port, with guides, reviews, examples.
2) There must be a column about emulators on QL (spectrum emulators, CPM emulators maybe others)
3) Full QPC guides, compatibility issues, hardware emulation via QPC.
4) The use of Super basic in Mathematics etc. There was an example in Sinclair QL World vol 2 issue 11 with an article with title neural networking.
5) You can try a competition with programs etc. about the use of QL on artificial intelligence."

My first reaction was that most of these topics have already been covered in QL Today, although I have not had time to search through all 55 issues for detailed references. However Dr. Hanias raises a few interesting points and I would welcome more reactions from readers. To help you on your way some further comments from me:
Many of the Digital Precision programs Dr. Hanias mentions are now obsolete and unobtainable either commercially or as freeware products. Which old programs are still being used and do users have problems with them? Should there be a space in QL Today for "golden oldies"?
Nowadays emulators mean PC or MAC programs to run QL programs on other systems, but formerly they meant QL programs to write in other programming languages. Which emulators, old style, are still being used today and to what extent? Would someone like to compile a list? We recently had a suggestion for articles on C programming. Would this interest readers and, if so, at what level should we pitch them?
QL Today has always published programs for mathematicians. Our longest series, now at part 43, has been "Gee Graphics", and Stephen Poole has recently added his contributions, but are there other articles the mathematicians would like to see?
Subjects such as neural networking and artificial intelligence are no longer the "hot topics" they were in the 1980's and 1990's, but would you like to see more of these? If not, what should be our themes for the 2000's?
Of course we are looking for more than suggestions. We are very fortunate in QL Today to have a group of loyal writers who contribute regularly, but ultimately we are dependent on the articles we receive. We can suggest topics, or if we are feeling brutal, even twist a few arms, but without people willing to write for us we cannot give you the magazine we would all like to see.

Dr. Hanias went on to ask three questions:
"1) Why there is not yet software for QL as Grapher, Origin, or EXCEL in complete form? In other words there is no program for data presentation.
2) How can I make QPC2 work with Greek ROMS so I can have Greek letters in Quill etc. on QPC2?
3) All of us we are in love with the shape of QL Could one build a machine with same dimensions and colour but with a DVD recorder in the place of microdrive; USB ports in place of joystick ports; with 68060 or other processor; with TFT screen; a QL, Linux, (spectrum via emulation) portable machine?"

There are potential articles in these questions.
The QL has good alternatives to Abacus and Archive, but QL Today receives few articles on spreadsheets and data bases. The one Psion program for which there has never been an alternative is Easel. In an era of high resolution and GD2 graphics, could there be an opportunity here for an enterprising programmer?
How many people want to use non-Roman scripts in SMSQ-E? Am I correct in thinking it is no more difficult to modify the SMSQ-E character set that it is on the native QL? I know of users who have used Quill for Russian, Greek, Hebrew and Czech texts using hacked versions of the program that modify the "High" character set. These versions of Quill still run in QPC2, but they require a QL compatible printer that can download fonts. Is it now possible to avoid the need to download by using a suitable windows font and QPC Print?

Finally Dr. Hanias raises the possibility of a "laptop" QL. This is a pipe dream that occasionally surfaces on the email QL-users group when we indulge our fantasies for a few days, until the hardware experts bring us down to earth with a bump. Perhaps these same experts could tell QL Today readers how near we have come to making it a reality. In particular we would welcome an article describing in simple terms why the QL is unlikely to get a USB interface. Hardware must also have a place in QL Today.

One Dimensional Cellular Automata on the QL

by Timothy Swenson

Back in the spring of 1987, I was half a credit unit short of meeting the requirements for graduating college. With just a day left for signing up for any new classes, I was searching for a way to get that half credit unit. Luckily, the college I went to had an Independent Study course, where you pick a subject, pick a Professor and work all quarter doing research and writing a final paper.

I thought it would be interesting to learn more about something that I had read about in magazines and touched on slightly in my Automata class, Cellular Automata. I had read about Conway's "Game of Life", which is a two dimensional cellular automata, how a simple algorithm could produce some fairly complex mathmatical results. Once I had the subject picked, then I had to find a sponser. After some looking, I found a Professor that thought the idea had merit and would approve the "course" for credit.

Basically, Cellular Automata is a group of "cells" that have a number of states, ie. "alive" or "dead". Each cell has a neighborhood that affects the cell. The neighborhood could be the cells right close the cell, or further out. For each cycle, or interation, a rule would determine what happened to an individual cell. Depending on how many of its neighbors were "alive" a cell would either die or become alive. In more general terms, the state of the cells in the neighborhood determine the state of the current cell in the next time interval.

I initially wanted to study variations on the Game of Life, but started reading about a simpler form of Cellular Automata called One Dimensional Cellular Automata. This is a form of Cellular Automata where you are dealing with a simple array (a[x]) instead of a two dimensional array (a[x,y]). This means there are less possible combinations and is much easier to study. So my paper focused on this simpler form of Cellular Automata.

Besides a paper, I had to write a program that would shows the many interations of this Cellular Automata so that I could see how each different rule would behave. With One Dimensional Cellular Automata (1DCA), each interation is displayed on the screen as a single line of dots. As time goes by the different interations display lower on the screen and, over time, a pattern will emerge.

Without getting into the gory details, the part of 1DCA that I looked into covered Totalistic rules, meaning that a count of the alive cells in the neighboorhood would affect a cell and not which neighboorhood cell was alive. This made it simpler to code and simpler to go through all of the possible rules for a given neighboorhood size.

I have recently taken my old program, brushed the dust off of it, cleaned it up, added some error checking, and present it here. Also included in a file for the rules for a neighboorhood of 2.

Here is a quick rundown of how to run the program.

Once started, you will need to load a rule file. Select option 1 and enter the name of the rule file (including the full path of where it is stored). Now you need to choose which specific rule to use. Choose option 2 and select a rule (for a neighboorhood of 2, choose a rule from 1 to 7). At this point we can take the default values for the rest of the configuration options.

Select option 6 to run the rule. Choose option 2 to select Randomly set the initial value of the cells. For more detailed research, you can read in

Rules file (save as rule2_rul)

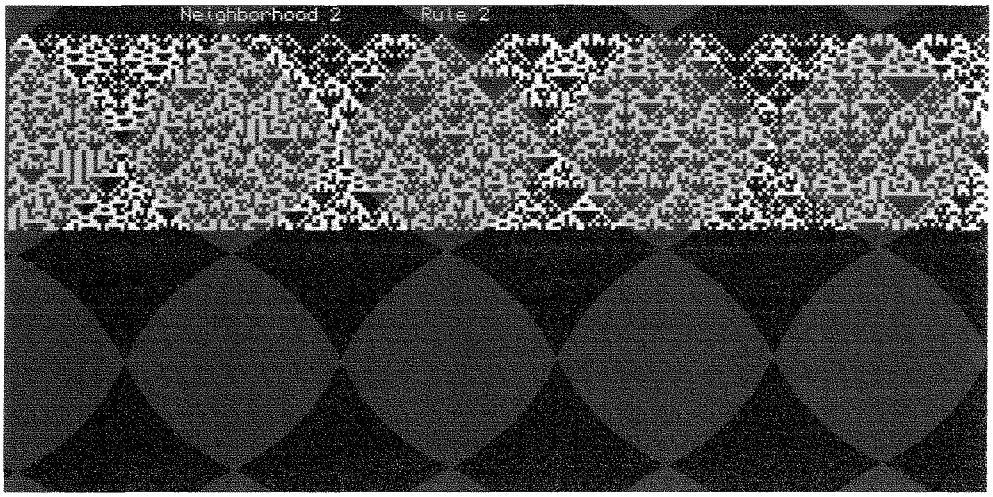
```
Neighborhood 2
2
7
Rule 1
001
001
Rule 2
010
010
Rule 3
011
011
Rule 4
100
100
Rule 5
101
101
Rule 6
110
110
Rule 7
111
111
```

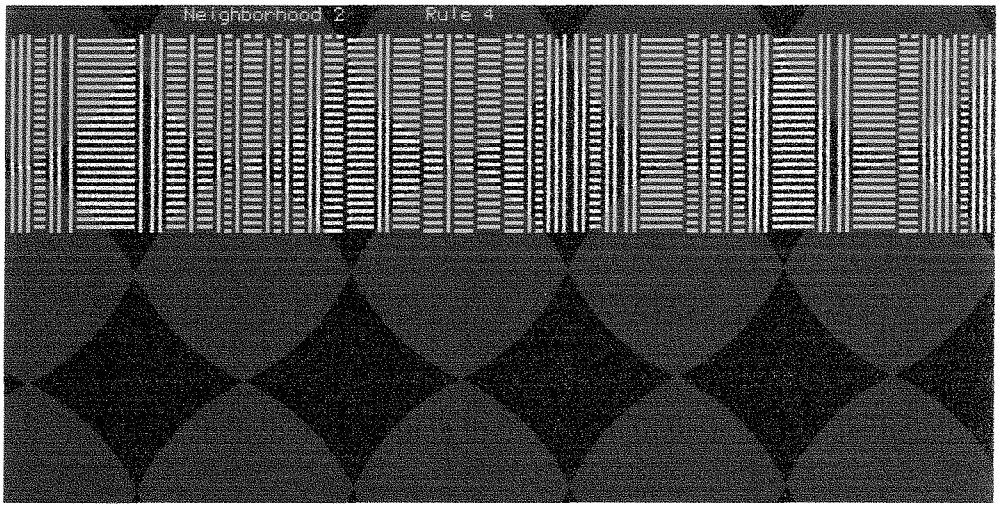
a file the defines which cells are alive, so that you can have the same starting point for all of the rules.

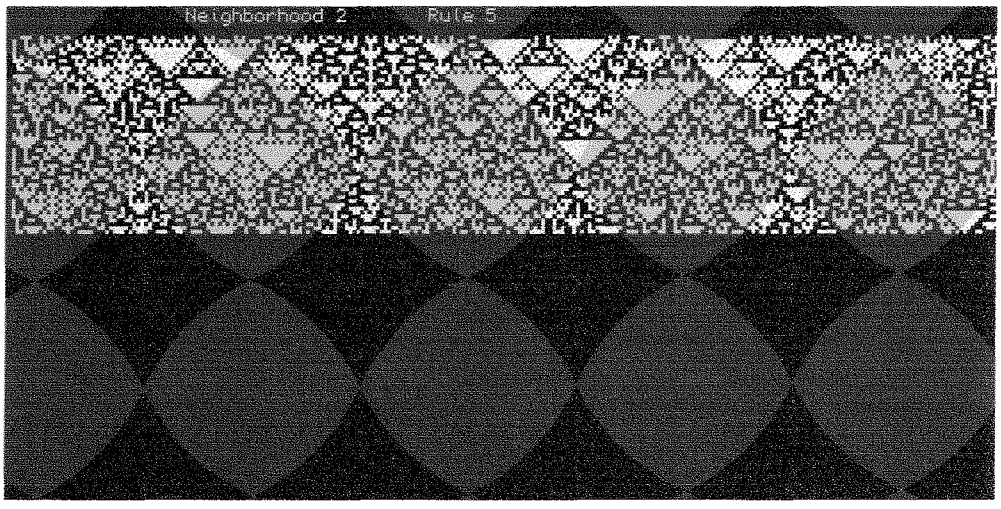
Once you've selected the way to start the cell array, you will see all of the cells displayed on the screen, with each cell a block. As each interation is run, you will see the new 'generation' displayed on the screen below the previous. As this keeps running, depending on the rule, you should see some patterns emerge. Some rules will quickly kill all of the cells, other rules will quickly bring all cells alive. The more interesting ones will create a nice looking pattern on the screen.

Once the program has run through the first number of iterations (which is user changeable), you can hit F1 to return to the main menu and F2 to continue to the next set of iterations.

If anyone is interested in reading further about this subject, just do google search on Stephen Wolfram, who has pretty much done the first serious work on One Dimensional Cellular Automata. He has written a couple of books on the subject including the latest "A New Kind of Science."







```
100 TURBO_taskn "1DCA"
110 IMPLICIT% xmax, rule1, cycle, blocksz
120 IMPLICIT% menu, xx, yy, count, key, z
130 IMPLICIT% rand, start, finish, x, number, tempx
140 xmax = 512
150 rule1 = 1
160 cycle = 50
170 bloksiz = 2
180 DIM world(xmax)
190 DIM rule(64,9,2)
200 OPEN #4,con_512x256a0x0
210 PAPER #4,0 : INK #4,4
220 OPEN #5,con_200x200a100x25
230 CLS #4
240 PAPER #5,0 : INK #5,2 : BORDER #5,2,4
250 REPEAT mainloop
260  CLS #5
270  PRINT #5,"  ONE DIMENSIONAL"
280  PRINT #5," CELLULAR AUTOMATA"
290  CSIZE #5,0,0
300  PRINT #5
310  PRINT #5,"   M E N U "
320  PRINT #5," ---------------"
330  PRINT #5," 1] Load Rule File"
340  PRINT #5," 2] Choose Rule To Use"
350  PRINT #5," 3] Display Rule"
360  PRINT #5," 4] Set Number of Cycles"
370  PRINT #5," 5] Set Block Size"
380  PRINT #5," 6] Run Automata"
390  PRINT #5," 7] Instructions"
400  PRINT #5," 8] Quit"
410  INPUT #5," Enter Choice : ";menu
420  SELect ON menu
430   ON menu = 1
440    loadrule
450   ON menu = 2
460    chooserule
470   ON menu = 3
480    displayrule
490   ON menu = 4
500    setcycles
510   ON menu = 5
520    setblock
530   ON menu = 6
540    startautomata
550   ON menu = 7
560    instruct
570   ON menu = 8
580    STOP
590  END SELect
600 NEXT mainloop
610 DEFine PROCedure loadrule
620  LOCal file$,in$,xx,yy,loop
630  REPEAT loop
640   CLS #5
650   PRINT #5
660   PRINT #5,"Enter File Name to Load. Include Device Name (i.e WIN1_)"
670   INPUT #5,file$
680   xx = FTEST(file$)
690   IF xx = 0 THEN EXIT loop
700   IF xx = -7 THEN PRINT #5,"File Not Found"
710   IF xx = -11 THEN PRINT #5,"Bad File Name"
720   IF xx = -9 THEN PRINT #5,"File In Use"
730   PAUSE #5,100
740  END REPEAT loop
750  OPEN_IN #6,file$
760  INPUT #6,in$
770  INPUT #6,neighbor
780  INPUT #6,number
790  FOR xx = 1 TO number
800   INPUT #6,in$
```

```
 INPUT #6,in$
 FOR yy = 1 TO neighbor+1
  rule(xx,yy,1) = in$(yy)
 NEXT yy
 INPUT #6,in$
 FOR yy = 1 TO neighbor+1
  rule(xx,yy,2) = in$(yy)
 NEXT yy
NEXT xx
CLOSE #6
END DEFine
DEFine PROCedure chooserule
 CLS #5
 PRINT #5
 PRINT #5,"Enter Rule to Use. Enter the Nth Rule in the File."
 INPUT #5,rule1
 PAUSE #5,20
END DEFine
DEFine PROCedure displayrule
 LOCal xx
 CLS #5
 PRINT #5 : PRINT #5,"R U L E ";rule1
 PRINT #5,"-------------"
 PRINT #5 : PRINT #5,TO 28;
 FOR xx = 1 TO neighbor+1
  PRINT #5,rule(rule1,xx,1);" ";
 NEXT xx
 PRINT #5
 FOR xx = 1 TO neighbor+1
  PRINT #5,rule(rule1,xx,2);" ";
 NEXT xx
 PRINT #5
 PRINT #5,"Enter Any Key to Continue"
 PAUSE #5
END DEFine
DEFine PROCedure setcycles
 CLS #5
 PRINT #5
 PRINT #5,"Enter Number of Cycles to Run Through";
 PRINT #5,"Before the Program Pauses"
 INPUT #5,cycle
 PAUSE #5,10
END DEFine
DEFine PROCedure setblock
 LOCAL loop
 REPEAT loop
  CLS #5
  PRINT #5
  PRINT #5,"Enter the Size of the Blocks to Use."
  PRINT #5,"   ( 1 to 8 )"
  INPUT #5,bloksiz
  IF blocksiz < 1 OR blocksiz > 8 THEN
   PRINT #5,"Not a Valid Entry"
  ELSE
   EXIT loop
  END IF
  PAUSE #5,20
 END REPEAT loop
END DEFine
DEFine PROCedure instruct
 CLS #5 : PRINT #5
 PRINT #5," This program will run a cellular system through a specified rule."
 PRINT #5,"The program lets you choose the size of the blocks to display."
 PRINT #5,"This allows you to see in greater detail what is going on. Once"
 PRINT #5,"the program pauses, you may hit F1 to start to program over, or"
 PRINT #5,"you may hit F2 to stop the program. The program does not clear"
 PRINT #5,"the screen so that you may use a screen dump program to print "
 PRINT #5,"out the results. This will give you a hard copy for later ref-"
 PRINT #5,"erence."
 PRINT #5 : PRINT #5,"Hit Any Key To Continue"
 PAUSE #5
```

```
1520 END DEFine
1530 DEFine PROCedure startautomata
1540  setinit
1550  count = 15
1560  CLS #4
1570  PRINT #4,TO 15;"Neighborhood ";neighbor;"   Rule ";rule1
1580  display
1590  up = -bloksiz
1600  REPeat done
1610   FOR loop = 1 TO cycle
1620    count = count + bloksiz
1630    IF count › 250 THEN
1640     count = 250
1650     SCROLL #4,up,0
1660    END IF
1670    nextcycle
1680    display
1690   NEXT loop
1700   BEEP 150,4
1710   PAUSE #4,4000
1720   LET key = KEYROW(0)
1730   IF key = 2 THEN EXIT done
1740   IF key = 8 THEN
1750    LET alldone = 1
1760    EXIT done
1770   END IF
1780  END REPeat done
1790 END DEFine
1800 DEFine PROCedure getdata
1810  LOCal loop,xx,a$
1820  REPEAT loop
1830   PRINT #5
1840   PRINT #5,"Enter File Name of Set-up File to Load."
1850   PRINT #5,"Include Drive Name (i.e WIN1_ )"INPUT #5,a$
1860   xx = FTEST(a$)
1870   IF xx = 0 THEN EXIT loop
1880   IF xx = -7 THEN PRINT #5,"File Not Found"
1890   IF xx = -11 THEN PRINT #5,"Bad File Name"
1900   IF xx = -9 THEN PRINT #5,"File In Use"
1910   PAUSE #5,100
1920  END REPEAT loop
1930  OPEN_IN #6,a$
1940  REPEAT loop
1950   INPUT #6,b$
1960   IF EOF(#6) THEN EXIT loop
1970   LET world(b$)=1
1980  END REPEAT loop
1990  CLOSE #6
2000  RETurn
2010 END DEFine
2020 DEFine PROCedure initialise1
2030  LOCal z, rand
2040  world(1) = 0 : world(xmax) = 0
2050  FOR z = 2 TO INT(xmax/bloksiz)-1
2060   LET rand = RND(1 TO 10)
2070   IF rand ‹4 THEN
2080    world(z) = 1
2090   ELSE
2100    world(z) = 0
2110   END IF
2120  NEXT z
2130 END DEFine
2140 DEFine PROCedure initialise2
2150  LOCal xx
2160  FOR xx = 1 TO xmax
2170   world(xx) = 0
2180  NEXT xx
2190 END DEFine
2200 DEFine PROCedure nextcycle
2210  LOCal start, finish, x, number
2220  start = neighbor/2 : finish=INT(xmax/bloksiz)-start
```

```
2230  FOR x = start TO finish
2240   number = ruleeval
2250   IF (number=1) AND (world(x)=0) THEN world(x)=2
2260   IF (number=0) AND (world(x)=1) THEN world(x)=3
2270  NEXT x
2280 END DEFine
2290 DEFine PROCedure display
2300  LOCal xx, xxx
2310  FOR xx = 1 TO INT(xmax/bloksiz)-1
2320   xxx = xx * bloksiz
2330   IF (world(xx)=1) OR (world(xx)=2) THEN BLOCK #4,bloksiz,bloksiz,xxx,count,4
2340   IF world(xx) = 2 THEN world(xx) = 1
2350   IF world(xx) = 3 THEN world(xx) = 0
2360  NEXT xx
2370 END DEFine
2380 DEFine FuNction neighborhood2
2390  LOCal count
2400  LET count = 0
2410  IF (world(x-1)=1) OR (world(x-1)=3) THEN count=count+1
2420  IF (world(x+1)=1) OR (world(x+1)=3) THEN count=count+1
2430  RETurn count
2440 END DEFine
2450 DEFine FuNction neighborhood4
2460  LOCal count
2470  count = 0
2480  IF (world(x-2)=1) OR (world(x-2)=3) THEN count=count+1
2490  IF (world(x-1)=1) OR (world(x-1)=3) THEN count=count+1
2500  IF (world(x+1)=1) OR (world(x+1)=3) THEN count=count+1
2510  IF (world(x+2)=1) OR (world(x+2)=3) THEN count=count+1
2520  RETurn count
2530 END DEFine
2540 DEFine FuNction neighborhood6
2550  LOCal count
2560  count = 0
2570  IF (world(x-3)=1) OR (world(x-3)=3) THEN count=count+1
2580  IF (world(x-2)=1) OR (world(x-2)=3) THEN count=count+1
2590  IF (world(x-1)=1) OR (world(x-1)=3) THEN count=count+1
2600  IF (world(x+1)=1) OR (world(x+1)=3) THEN count=count+1
2610  IF (world(x+2)=1) OR (world(x+2)=3) THEN count=count+1
2620  IF (world(x+3)=1) OR (world(x+3)=3) THEN count=count+1
2630  RETurn count
2640 END DEFine
2650 DEFine FuNction ruleeval
2660  LOCal number, tempx
2670  SELect ON neighbor
2680   ON neighbor = 2
2690    number = neighborhood2
2700   ON neighbor = 4
2710    number = neighborhood4
2720   ON neighbor = 6
2730    number = neighborhood6
2740   END SELect
2750   tempx = world(x)
2760  RETurn rule(rule1, number+1, tempx+1)
2770 END DEFine
2780 DEFine PROCedure setinit
2790  CLS #5
2800  PRINT #5
2810  PRINT #5,"Method of Initialization"
2820  PRINT #5,"-------------------------"
2830  PRINT #5," 1] Load From a File"
2840  PRINT #5," 2] Random "
2850  PRINT #5,"Enter Way to Initialise"
2860  INPUT #5,init
2870  IF init = 1 THEN
2880   CLS #5
2890   initialise2
2900   getdata
2910  END IF
2920  IF init = 2 THEN initialise1
2930 END DEFine
```

The QL Family Tree - New Growth

by Geoff Wicks

Five years ago, just before the QL2000 show in Portsmouth, Dilwyn Jones wrote a potted history of the QL for QL Today (Volume 4 issue 5 page 52 and issue 6 page 10). Another international Portsmouth show means it is time for an update, but first a recap of the main events of 1999.

Phil Jordan had taken over the previous SJPD library and Darren Branagh had started QCelt, but Qubbesoft had ceased trading. QPC2 was launched and Charles Dillon had released the code of some former Digital Precision programs. The Q40 was available with three different operating systems, QDOS classic, SMSQ-E and Linux, and GD2 colour drivers. John Dent had begun work on a TCP/IP system for the QL. Club QL International had closed down, Simon Goodwin and Al Boehm brought out a QL Midi player and John R Rish had taken over from Frank Davis as the North American QL dealer. David Westbury had written a QL JPG viewer, Arnould Nazarian was lobbying for the Stella system and Robin Barker had stirred up some controversy by suggesting Quanta should become a multi platform user group. Finally Jochen Merz became the first QL trader to set up a secure web transactions service.

2000

The year 2000 continued in much the same way. Digital Precision had released some of its previous commercial software as public domain or freeware, and other traders followed suit. The most significant was Progs who took ProWesS out of the commercial market to stimulate QL development. However Progs continued development work on ProWesS to ensure its compatibility with the new colour drivers. Other commercial software released into the public domain or as freeware was the complete Ergon range and the first Just Words! program, Solvit Plus. QCelt produced the first QL CD-roms including the complete Quanta library on one CD. Major new commercial programs were Agenda by Wolfgang Lenerz and Suqcess by Wolgang Uhlig.

The QL trend setter of 2000 was, without doubt, the Q40. It was not only the first QL platform to have GD2 colours, but it also stimulated the development of a new sprite editor; of conversion programs and viewers for PC graphics formats; and of Sox Sound Utilities for QDOS. The Linux possibilities of the Q40 interested many of its purchasers.

GD2 colours became available for QPC2 and the QXL at the end of the year. Tony Tebby released an 11 page booklet of GD2 documentation and George Gwilt wrote a technical description of them for QL Today. George also announced his intention to make the Turbo Toolkit and the Turbo Compiler SMSQ-E and Pointer Environment compatible. Other teams, led by Mark Knight, were working on making The Editor and Perfection compatible with high resolution screens.

In October Quanta organised a two day international show in Portsmouth. Prior to this traders had pooled their client information and, together with Quanta, had mailed 2000 QL-ers worldwide in an attempt to build an up to date database. The response in terms of returned postcards was disappointing. At the show one of the main themes was the QL and the internet. During the year three new QL websites had been launched by Dilwyn Jones, Quanta and Just Words! Jon Dent's development work on a TCP/IP system for the QL stimulated programmers to write HTML reader and writer software, much of it freeware.

2001

If 2000 was the year of the Q40, 2001 was the year the infant QPC2 rapidly grew into an adult. During the year a host of new features were added, including reading and writing to the DOS section of the hard disk; the ability to run the program in a Windows style window; increased PAR support to allow the use of more than one printer; and 512 x 256 screen emulation to improve compatibility with older programs.

Meanwhile the Q40 was not standing still and flash memory support had been added. The Graf brothers had gone on to develop the Q60, but this had been unable to go into production because of the difficulty of finding a trader to produce and finance it.

Much of the year was marked by a bitter, and at times personal, controversy over the merits of the two platforms that raged through the columns of QL Today and in the QL-users email group.

Somehow the interests of original native hardware users seemed to be neglected. although there was a suggestion of a new version of Qubide with flash memory support and a rekindling of interest in the Goldfire project.
2001 was not a good year for commercial software with only two new products being released - Wall, a game by Wolgang Lenerz and a rhyming dictionary from Just Words! There was also an upgrade to QSpread. QCelt extended its range of QL CD-roms.
Non commercial software did better with George Gwilt continuing to develop Turbo and TPTR. SQLUG launched its website that would eventually host George's software. Dilwyn Jones set up a new software library, much of which was on CD-rom or could be downloaded from the internet.
At the Quanta AGM Simon Goodwin demonstrated a program for downloading and displaying Kodak digital camera images on the QL. And at the North American show in Montreal Jim Hunkin demonstrated an early version of QDT, a QL desktop program, that he was developing. During the show weekend Tony Firshman's "cute" beard attracted attention in a Montreal bar, which, unknown to the QL-ers present, was a gay establishment. Several well known QL-ers are reported to have left the bar with smiles on their faces. Quanta had its ups and downs during the year. There was a temporary problem with its website when the host provider ceased to function. On a more positive note the rapid decline in membership had slowed down and it now had a hard core of dedicated QL-ers. Tony Firshman did his first mass e-mailing to advertise Quanta and other shows.
Finally the QL hit the national computer press when it was featured in Personal Computer World.

2002

The year opened well for the Q60. A new QL trader, D & D Systems run by Derek Stewart and Dennis Smith, had agreed to build and market the Q60 as a complete packet with case and supporting software. It was the nearest to "plug and play" the QL community has ever had. Quanta financially backed the initial production and the project even got a mention in Micro Mart magazine.
In America Phoebus Dokus secured a batch of compact flash adapters making flash memory available to a variety of QL platforms. Nasta produced detailed proposals for an upgraded QUBIDE to access up to 6 devices.
Commercial software had another lean year with only two new products, a half million word QTYP dictionary from RWAP and a hand writing analysis program from Just Words! There was, however, promise of commercial products to come. Jim Hunkin launched a website to encourage input from QL-ers about the content of QDT and a team of RWAP Software, Just Words! and Phoebus Dokus announced a word game using digital sound on hi-resolution, hi-colour screens. Non commercial software was blossoming. There were more PC/QL graphics conversion utilities; a program for displaying and choosing GD2 colours; more QL support for the Euro; and an update of The Editor. Several new versions of the Turbo compiler and Turbo pointer also appeared. Darren Branagh and Dilwyn Jones broke all records with an idea during a pub conversation for a QL documentation CD. Less than 24 hours later they were selling it at a show.
The big news of 2002 was the release of the SMSQ-E source code, although Tony Tebby retained the copyright. Wolfgang Lenerz was appointed registrar to maintain the official version, which would be sold by 2 approved resellers, Jochen Merz and Roy Wood. Later in the year they were joined by Phoebus Dokus. This construction was to ensure any changes to SMSQ-E for a single platform also became available to the other platforms. The licensing agreement was the source of another bitter controversy in the QL-users email group.
Much SMSQ-E development work was being done by Marcel Kilgus who also announced he was implementing access to the colour drivers via the window manager, WMAN. This was necessary because there were still few applications using the colour drivers and none of these were in the commercial sector.
Two Quanta stalwarts, John Taylor and Bill Newell, resigned from the committee and were given an award plus life membership in recognition of their services at a London show. There had been a surreal start to the show when QL-ers had been marooned on the pavement waiting for a group of sword dancers to vacate the hall.

2003

2003 would have been a quiet QL year had it not been for one momentous event which could change the face of QL software. Marcel Kilgus released his upgraded window manager. The new WMAN could not only display mode 4 and mode 8 QL colours, but also the new GD2 colours compatible with all QL platforms using SMSQ-E. (GD2 colour drivers for the Aurora card, another Marcel

JOCHEN MERZ SOFTWARE

Kaiser-Wilh.-Str. 302 D-47169 Duisburg
Tel. 0203 502011 Fax 0203 502012
http://smsq.j-m-s.com smsq@j-m-s.com

SMSQ/E - New Prices!

The cold, dark days are coming ... which means more time can be spent for computing. We cannot think of a better event than "QL is 21" to cut the prices of SMSQ/E, to help even more QLers switch to SMSQ/E - be it either with QPC2 on a PC or for existing systems.

QPC2 Version 3 with SMSQ/E ... now only **EUR 59,90**
QPC2 Version 3 upgrade from Version 2 ... only **EUR 19,90**
QPC2 Version 3 upgrade from Version 1 ... only **EUR 39,90**
QPCPrint ... still only **EUR 39,90**

SMSQ/E for ATARI or GoldCard or SuperGoldCard or QXL ... now only **EUR 39,90**

Colour drivers now included as standard for (Super)GoldCard versions

SMSQ/E (Super)GoldCard Aurora Upgrade ... only **EUR 19,90**

Special X-Mas offer (valid 'til 24th of Dec, 2005):
QPC2 Version 3 with QPCPrint ... only **EUR 89,90**

For shipping inside Europe, EUR 3,- will be added for postage and packaging.
For shipping outside Europe, EUR 6,- will be added for p & p.

If you wish to place your order via internet, please do not send your credit card details in an email!
Please use the secure contact form on the SMSQ homepage: SMSQ.J-M-S.COM
We accept VISA, MasterCard and Diners Club!

Kilgus achievement, also became available). The new WMAN introduced the concept of "colourways" to enable the user to choose the colours most pointer software would display on his own system. There was also support for high colour sprites and 3D windows.
The new window manager brought almost instant benefits as JMS upgraded almost all of his commercial software using the new WMAN. This was the first time GD2 colours had been used in commercial programs. An upgrade patch to make Text87 compatible with high colour QL systems was also released.
Other than this it was another a quiet year on the commercial software front with only one major new program. Dilwyn Jones released Launchpad, a GUI (Graphical User Interface) program for the QL.
Freeware software continued to flourish. Ergon made all its programs GD2 compatible; Wolfgang Uhlig continued writing utilities for people programming in the new colours; and Just Words! completed a program of upgrading and updating QTYP dictionaries in several languages. Peter Graf announced a significant development in internet access for Q40/Q60 users in QLwIP, a native TCP/IP stack for QDOS. At that stage it did not support sending emails. QL Today produced the first ever QL magazine cover CD.
On the hardware front RWAP Software and Bill Richardson achieved what many had believed to be impossible, namely the production of new QL and Spectrum keyboard membranes. Laurence Reeves made the source code of Minerva 1.98 available on his website. There were several QL shows throughout the year although most were poorly attended. At the Quanta AGM the possibility of the Quanta Magazine being available electronically was discussed and at a show in Berchtesgaden an internet connection with a local network was set up. During the summer much interest was expressed on the QL-users email group in a possible QL2004 show to celebrate 20 QL years. Quanta promised to sponsor this show, much to the disappointment of continental QL-ers who wanted an Eindhoven show. By the end of the year Quanta had taken no steps to organise the event.

2004

In many ways 2004 was superficially a quiet QL year, but below the surface many things were happening which reached a climax at the end of the year.
In the absence of Quanta plans for a QL2004 celebration, a small team decided to organise the event in Eindhoven, an appropriate choice as this was the oldest continuous QL show venue. It was also a convenient centre for continental QL-ers. QL2004 and the yearly North American show introduced dedicated websites to advertise their shows to the QL community.
Eindhoven had been the centre for much GD2 colour work and during 2004 much of this work bore fruit. EasyPtr, the most popular tool for writing pointer environment programs, was not compatible with the GD2 colours, but Wolfgang Uhlig and others pioneered techniques for recolouring EasyPtr windows. Just Words! used this system to release its complete freeware range in GD2 colours. However the technique was a little cumbersome and EasyPtr users began to lobby for an update to the program.
In parallel George Gwilt had continued to develop Turbo Pointer and released a program for converting EasyPtr screens to Turbo Pointer format. He also started work on a problem of array parameters in the Turbo compiler.
There were also new innovations in QPC2 including support for the sound facilities already available to Q40/Q60 users. This, together with the GD2 colours and 3D screens, promised to revolutionise QL games. By the end of the year Marcel Kilgus was writing major improvements to QPC2. Beta testers had been sworn to secrecy, but the news leaked out of TCP/IP facilities that would bring email and internet access to the QL. (A little known fact was that this facility already existed for Q40/Q60 users.)
Quanta had a variable year. An unfortunate clash between the Quanta AGM and the North American show led to few traders being present at the AGM. At this meeting Robin Barker stepped down after many years as Chairman and John Gilpin, the treasurer, reported that Quanta has covered its costs in the previous year for the first time in many years. At the end of the year Quanta published a survey of QL use and Tony Firshman adapted this for online participation. About a quarter of Quanta members and many non-members responded to this survey.
QL2004, held late in the year, proved a popular show and was well attended by QL developers. It seemed to give a new impulse to the QL and by the end of the year the future for software looked rosy. QDT and QWord, both of which had had a much longer gestation period than their authors had originally intended, were finally released. In addition there were reports that an upgraded QPC2, an upgraded EasyPtr and a solution to the printer problem for QPC2 users would be released in early 2005.

Reply to letter from George Gwilt

by Norman Dunbar

George's original quotes are *italics*. Norman's replies are **bold**.

It is always a pleasure to read Norman Dunbar's articles on Programming in Assembler. I was especially interested in Part 13 which deals with recursion since I had to resort to that device in at least two places in GWASS and I wanted to see how someone else tackled the problem.
Equally, it is a pleasure to know that someone has read them :o)

The program to find Fibonacci numbers certainly works but does far more than is needed as Norman says, so it is a good idea to change the program to avoid the duplication. I have a comment or two on the suggested code for storing calculated values.
First I should perhaps apologise for the fact that GWASL does not zero blocks of space set by its DS command so that these blocks have to be cleared by program. In fact later versions of GWASS (but not GWASL) do zero the space.
For those readers who don't already know, George Gwilt is the 'GW' in the free assembler GWASL which we use to assemble source code in this series.

Second, I think that there should have been a hash (#) in front of 1000 in the instruction just before I_Loop. Run on my Q60 without the hash this would result in a disastrously large count of 27727.
This is correct, there should have been a hash in front of 1000 as spotted by George. Not having the hash will load up the contents of address 1000 and not the value 1000 as desired. This is one of those silly mistakes that can take a while to track down without the aid of a QMON type program.

Third, I am not sure why the pair of instructions

```
        clr.l     (a3)
        adda.l    #4,a3
```

were not replaced by the single

```
        clr.l     (a3)+
```

I thought I had changed that from my original draft, but it appears to have slipped through. This is a better (and more efficient) method of clearing out a long word and moving on to the next one in a loop. I must try harder in future.

Fourth, it seemed to me to be more sensible to fill the space allotted for answers with the answers themselves rather than simply clear them. I know that this would eliminate the need for recursion altogether, but I couldn't resist writing and using the following anyway:

```
        bra       start
answer  ds.l      46                ; Not 1000 (see below)
start   lea       answer,a3
        tst.l     (a3)              ; Table filled? . .
        bne       end               ; . . yes
        moveq     #1,d1
        move.l    d1,(a3)+          ; Set Fib(0)
        move.l    d1,(a3)+          ; Set Fib(1)
        move.w    #43,d0            ; count for the remainder - 1
loop    add.l     -8(a3),d1         ; Add Fib(n-2) to Fib(n-1)
        move.l    d1,(a3)+          ; Store Fib(n)
        dbf       d0,loop
end     moveq     #0,d0
        rts
```

This can be CALLed to set the Fibonacci numbers 0 to 45. Fibonacci numbers from 47 onwards are greater than 2^{32} and so do not fit in a long word. Fib(46) is greater than 2^{31} and so would be treated by PEEK_L as a negative number. Hence I saw no need for more than 46 answers.
Hmmm, as George states, this does away with recursion altogether and so wouldn't have been a very good demonstration of recursion :o)

Seriously though, there are many ways to skin the proverbial cat and almost all recursive routines can be rewritten without recursion which makes them simpler in some cases, and horrendous in others. George's solution above is quite simple, quick, easy to understand and won't obliterate the stack.

Recursion in GWASS

I found the need for recursion in GWASS during the determination of Label values.

A label, L1, say, may be set to a number by L1 EQU 6, or it might be set to a combination of labels by, say, L1 EQU 6 + L2 - L3. If the values of any of the labels in the list are as yet undefined, a list (called an EQU list) is set up in place of the value. When the entire program has been scanned all the labels must by then have been assigned values. At this stage a routine GLAB gets the value of the EQU list. It is here that recursion appears, since any of the labels in an EQU list might itself be an EQU list which must then in turn be evaluated by a another call to GLAB.

Each label has a 4-byte value and a 2-byte type as follows:

Type	Value
0 undefined	-
1 defined	value
2 EQU list	pointer to EQU list
3 ERROR	

Here is an extract from the subroutine GLAB

```
; GLAB
; At entry:
;  A1 -› EQU list LABEL
;
; At exit:
;  LAB Value and Type are set
;
;  If error: Type is set to 3 & D0 = -1
;  otherwise D0›=0
;
; All other registers are preserved
;
; Format of EQU list is:
;  Long       Word   Word   Word
; ____________________________________________
;| constant | op(0) | L(0) | . . | op(r) | L(r) | 0 |
;
; The op(i) are + or -
; L(i) are labels
;
; The value of an EQU list is "constant op(0) L(0) op(1) L(1). . op(r) L(r)"

GLAB      MOVEM.L   D1-2/D5-7/A3-4,-(A7)
          CMPA.L    G_LIMIT(A6),A7
          BLT       QER35      ----›     not enough space on stack
```

```
            MOVEA.L   VAL(A1),A3          pointer to EQU list
            . . .

GL_LP       MOVE.W    (A3)+,D3            op(i) or 0 for end of list
            BEQ       GL_END
            . . .                         (A4 -› LABEL L(i)

            BTST      #3,D0               is L(i) EQU list? ...
            BNE       GL_EQU              ... yes
            . . .

            BRA       GL_LP
            . . .

GL_EQU      . . .

            MOVE.L    A1,-(A7)            Keep current EQU list LABEL
            MOVEA.L   A4,A1               Set L(i) as EQU LABEL
            BSR       GLAB                Set the value of L(i)
            MOVEA.L   (A7)+,A1            Restore current EQU list LABEL
            . . .

            BRA       GL_LP

GL_END      . . .                         (Set LABEL value and type)

            MOVEM.L   (A7)+,D1-2/D5-7/A3-4
            TST.W     D0                  set condition codes
            RTS
```

As Norman has indicated it is possible to use too much stack and overwrite parts of ram that someone else is using. That is why I test that there is enough stack space each time I enter GLAB. The value stored in G_LIMIT(A6) in fact allows for 256 spare bytes. If there is too much recursion and so not enough space, GWASS signals an error and closes down. Apart from the addition of the check on stack size the format of GLAB seems to follow that of Norman's examples very closely.

A second case connected with recursion is in GWASS macros. One such is:

```
ext1        macro
            if        \3‹=\4
            dc.w      \1\3-\2
            ext1      \1,\2,|\3+1~,\4
            endif
            endm
```

(The call to ext1 within ext1 itself contains the parameter I\3+1~. This means "replace \3+1 by its value".)

As an example of the use of ext1:

```
            ext1      SH,HERE,1,4         \1 is SH, \2 is HERE, \3 is 1, \4 is 4
```

will result in

```
            dc.w      SH1-HERE
            dc.w      SH2-HERE
            dc.w      SH3-HERE
            dc.w      SH4-HERE
```

so it is quite a useful macro. The code in GWASS allowing macros to call themselves, or other macros, does, as Norman suggests, include LINK and UNLK to allocate from the stack the space needed for each invocation.

Finally, Norman asks whether anyone has a good 32 bit MULU and/or MULS routine. As it happens there is a routine in GWASS which multiplies two 12-byte numbers together. There are two versions, one is suitable for 68020 up to 68040 and the other works on a 68060. The 68060 does not have the MULU.L 32x32 -› 64 instruction so I had to use the lowly MULU.W instead. The code is at GN_TEN2 in the source code for GWASS. Unfortunately Jenkins' (or whatever his name was) law applies. This law states that any of your own code written more than six months ago might as well have been written by someone else. This means that I can't easily tell you how it works.
If I get my hands on the code - and I have the GWASS source code somewhere on my Win1_ drive - I'll try to have Jenkins' law repealed and work out what is going on. Unfortunately, my numeric skills are almost non-existant so I may not be able to figure it all out, but if I do, I'll let you (all) know.

Perhaps Norman will deal in future articles with the efficient organisation of space within an assembler program. This would allow him to give examples of just how LINK and UNLK should be used.
Point taken - I was looking for some inspiration recently and LINK/ULNK would make an interesting article. I hope!

File Information Functions and File Headers

by David Denham

In my article about error trapping back in volume 6 of QL Today I briefly discussed the file open functions of Toolkit 2, such as FOP_IN and FOP_NEW. These try to open a channel to a file and return a number which may indicate success or failure, depending on what happened and the number returned.
There are some other file functions built into Toolkit 2 and I thought I'd discuss those here. Before I embarked on this article I knew little or nothing about the file headers, so I hope that if there are errors in this article, someone more knowledgable will write to correct them!
To understand how some of these work we need to know a bit about how the QL stores files.

A file is stored with a 64 byte "header" which stores information about a file such as its type, size and some dates.
The 64 byte file header is described below, thanks to Dilwyn Jones for the information.

File Headers

QDOS file headers consist of a 64 byte file data block in the directory.
Filenames can be up to 36 characters long (not including the drive name).
Executable files have file type 1 and an associated dataspace value, while ordinary data files (including BASIC programs) are file type 0

In the list below, the offsets from the base of the header are given as $$hex/decimal.

Offset	Length	Description
$00/0	long	file length (in bytes)
$04/4	byte	file access key (not implemented on original QLs)
$05/5	byte	file type 0=a data file or SuperBASIC program 1=an executable file 2=SROFF relocatable object file 255=directory

3=Thor directory
4=font file in 'The Painter'
5=pattern file in The Painter
6=4 colour mode compressed picture in The Painter
11=8 colour mode compressed picture in The Painter

$06/6	8 bytes	if file type is an executable file (type 1), the first long word contains the default dataspace size of the program in bytes. The second long word at $0A/10 contains the value returned by the FXTRA function, although the second long word is not used by most QL programs.
$0E/14	word	length of the filename
$10/16	36 bytes	characters of the filename - the filename space always uses 36 bytes, irrespective of filename length, any surplus bytes are simply not used.
$34/52	long	file update date (date file was last changed)
$38/56	long	file reference date (date file was last read - this is not used on a standard QL)
$3C/60	long	file backup date (date file was last copied or backed up - not used on standard QL)

Accessing the Information

A standard QL without Toolkit 2 is a little bit useless to us here, since standard SuperBASIC doesn't have the keywords needed to extract the information.
Toolkit 2's designer did provide the extensions to access the data, however, and although the need to use these functions doesn't arise very often, it may be useful if you are writing file handler programs which need to access the dates or other parts of the header. Although a knowledge of the above theory helps with understanding what I'm on about, the extensions make it all pretty simple anyway.
One word of warning: early QLs without Toolkit 2 do not support all the dates and extra information, this may vary from system to system and what toolkits you have and so on.

FLEN
Probably the easiest example is the need to check the length of a given file. For this, we use the FLEN function.
These functions may be used in two ways. We can either open a channel to the file and use the function with a channel number parameter (e.g. `FLEN(#3)`) or we can use what's called an "implicit channel" by putting a backslash character before a filename, e.g. `FLEN(\flp1_myfile)` or `FLEN(\"flp1_myfile")`

```
OPEN_IN #3,"flp1_MyFile"
PRINT FLEN(#3)
CLOSE #3
```

The above 3 commands print the length of the file currently open on channel #3. If we simply want to do a one-off check on the file, it would obviously be less long winded to type:

```
PRINT FLEN(\"FLP1_MyFile")
```

There are a couple of considerations to decide which is best to use:

1. If you are reading text or data from a file, a channel may need to be open to that file anyway, so the first version (channel number) is best suited.

2. A one-off check might be best using the second example.

3. If the program is to be used on a very old system such as one of the older floppy disk systems with cut down Toolkit 2 commands, some of those early interfaces only supported FLEN with the channel number. To be fair, those systems are rarely encountered these days.

Note that these functions do not really provide much by way of error trapping function. If you check the length of a file and it does not exist (e.g. you forgot to put the disk in the drive) then hard luck. Your program stops with an error. You can work around this with commands such as those described in my error trapping article. A simple FTEST function might suffice:

```
100 IF FTEST("Flp1_MyFile") <> -7 THEN
110  PRINT FLEN(\"Flp1_MyFile")
120 ELSE
130  PRINT"Oh Dear, something went wrong."
140 END IF
```

FTYP

There are a number of different types of files as far as QDOS is concerned. Normally, we don't really mind about this unless we are writing advanced software such as programs to directly manipulate files.

The simplest is Type 0, a simple data file. This can be our list of addresses, a word processing file such as a Quill document, or even a Superbasic program. Yes, in QDOS terms at least, a basic "program" is actually little more than a data file in terms of how it's stored. If you've ever tried copying a basic program to the screen, you will have seen it's stored like a text file.

The other common type is Type 1, an executable program, a program you would start with an EXEC or EXEC_W command as opposed to a basic program which you'd LRUN. Programs like Quill and Abacus are 'type 1' or 'executable' programs.

You may not have heard of Type 2, as it's generally used by programmers. Type 2 is something called an SROFF file which I think stands for Sinclair Relocatable Object File Format or something like that. It's often used by assembler software and the like. Whatever, it's not something you need to worry too much about if just writing simple basic programs.

Type 255 (sometimes known as Type -1) is a directory type. For systems which have hard disks or other devices like romdisqs which support level 2 directories, the value 255 entered in the file header signifies this is a folder or directory as opposed to a normal file or program. Unfortunately, directory types aren't consistent on older systems. According to the list above, the CST Thor used a file type of 3 to indicate a directory.

Some programs implemented other file types, but these tend to be non-standard and sometimes cause more problems than they are worth. The two I've come across have been The Painter and one of the Spectrum emulators. As an example of the problems, try using the ZIP program to archive copies of these non-standard file types and watch it fail.

`PRINT FTYP(#3)` returns the type of a file open on channel #3. It will return a number, corresponding to the type as indicated above, e.g. 0 for a simple data file, or 1 for an executable program file.

You can also use FTYP with an implicit channel:

```
PRINT FTYP(\"Flp1_MyFile")
```

FDAT

Executable program files have a 'dataspace' associated with them. This is a sort of workspace area for the program - most programs will need a few kilobytes (some need much more than that!) in which to store their data for example. You can check the dataspace value with the FDAT function.

```
PRINT FDAT(\"Flp1_MyProgram_task")
```

This will print the size of the dataspace required in bytes.

As an interesting aside, the loss of the dataspace value can make a program unexecutable. A few years ago, I transferred some QL programs to a PC disk to run on someone's QL emulator. When I tried to execute them on that machine I kept getting a 'bad parameter' error. When a QL program is copied to a PC disk, it is often stored as a plain and simple data file since the PC does not understand QL file headers - programs lose their headers when copied to PC media in most cases and restoring it is a bit of a specialised job.

FNAME$

This function returns the name of a file open via a given channel number. It may seem obvious really, you have to know the filename so why do you need to have a function to tell you the filename? The answer is that usually you don't, but there are some uses which apply from time to time.

```
OPEN_IN #4,"Flp1_MyFile"
PRINT FNAME$(#4)
CLOSE #4
```

`PRINT FNAME$(#4)` would return the filename without the drive name, i.e. MyFile. Sometimes it can be useful to just get the filename without the drive name, e.g. if writing a routine to list filenames on a given drive.

A more advanced use is to separate directory names and filenames.

Modern QL hard disk systems can have complex directories storing many filenames. If you open a directory channel to a full filename, you can use

RWAP Services NEWS!

New Websites!

We are proud to present our new websites! Starting September, we have separated our business in three separate websites.

You can find them at:

<http://www.rwapadventures.com/> (Adventure Games)
<http://www.rwapservices.co.uk/> (General Site) and
<Http://www.rwapsoftware.co.uk/> (Software)

New Products!

Q-WORD 1.0 NOW WITH DIGITAL SOUND ON QPC2!

The wait is now over! Q-Word version 1 is finally available!

Platforms:
QPC/QXL, Q40/Q60, Aurora (with SGC)

Prices:

All versions without P-Word	£20.00p
All versions with P-Word	£30.00p

Notes:
Q-Word DOES NOT require SMSQ/E with GD2 support -OR- SMSQ/E at all on the Aurora or Qx0 machines. It works on the highest colour depth everywhere regardless of Operating System.
The Aurora version is available on either HD or ED disk. For the latter add £1.00 to the price. ED version is uncompressed and can be run directly from the floppy. All other Floppy versions are compressed. QPC/QXL version comes on CD. Non CD versions DO NOW support digital sound on QPC2

Quantum Leap ED Drives

After many years of unavailability, here they are again! These are high quality Mitsubishi constructed/IBM badged drives with full warranty.
Unlike previously sold ED drives, these do not require FLP_JIGGLE and have no problems formatting 720K disks. However for the latter a switch is included with the cable.

ED Bare unit (no cable)	£ 29.99p
ED Boxed unit (complete with cable/ PSU)	£ 98.99p
Single unit Cable (with switch)	£ 4.99p
Dual unit Cable (with two switches)	£ 5.99p

(More options available, contact us for details. Also available mass quantities of ED and DD disks!)

TALENT COMPUTER SYSTEMS for Windows

For QLers that run Windows or with incompatible hardware for Talent Games, we now have re-released these adventures so that they can run on your Windows-equipped PC. No Emulator, floppies, microdrive backups etc. required, just a one-click install! Of course the full QL line is still available! (See side column)

Talent Games for Windows	ea. £ 10.00p

(Each Game includes a runtime installation of QLAY-2 by Jimmy Montesinos)

Old Favourites!

Utilities

Sidewriter v1.08	£ 10.00p
Landscape Printing (EPSON printers)	
ImageD v1.03	£ 10.00p
3D object generator	
Q-Help v1.06	£ 10.00p
Superbasic On-Screen help system	
Q-Index v1.05	£ 5.00p
Keyword-to-topic finder	
ProForma ESC/P2 Drivers v1.04 for ProWeSs	£ 8.00p
Printer Driver	

Applications

Flashback SE v2.03 (upgrade only)	£ 5.00p
Database	
QL Cash Trader v3.7	£ 5.00p
Accounting/Finance	
QL Payroll v3.5	£ 5.00p
Accounting/Finance	
QL Genealogist v3.26	£ 20.00p
Genealogy	
Genealogy for Windows	£ 50.00p
QL Genealogist to Windows version upgrade	£ 25.00p
QL Cosmos v2.04	£ 5.00p
Planetarium	
Q-Route v2.00	£ 25.00p
Route Finding	
Upgrade from v1.xx	£ 5.00p
Britain map v1.11	£ 2.00p
BIG Britain map (needs 2Mb) v2.03	£ 5.00p
Various Britain Area maps (ask for details)	ea. £ 2.00p
Ireland map v1.00	£ 5.00p
Belgium map v1.01	£ 2.00p
Catalonia map v1.03	£ 2.00p
P-Word UK English Dictionary (500.000 words!)	£ 15.00p
Dictionary	

Leisure

Return to Eden v3.08	£ 10.00p
Adventure	
Nemesis MkII v2.03	£ 8.00p
Adventure	
The Prawn v2.01	£ 8.00p
Adventure	
Horrorday v3.1	£ 8.00p
Adventure	
West v2.00	£ 5.00p
Adventure	
The Lost Kingdom of Zkul v2.01	£ 5.00p
Adventure	
All 6 games above	£ 25.00p
D-Day MkII v3.04	£ 10.00p
Strategy/War Simulation	
Grey Wolf v1.08	£ 8.00p
Graphical Submarine Simulation	
War in the East MkII v1.24 (upgrade only)	£ 5.00p
Strategy/War Simulation	
Open Golf v5.20	£ 8.00p
Sports Simulation	
QuizMaster II v2.07	£ 5.00p
Quiz	
Stone Raider II v2.00	£ 5.00p
Arcade Game	
Hoverzone v1.2	£ 5.00p
Arcade Game	
Deathstrike v1.5	£ 5.00p
Arcade Game	
Flightdeck v1.0	£ 10.00p
Flight Simulation	
All 6 games above (Open Golf, QuizMaster II,Stone Raider II, Hoverzone, Deathstrike and Flightdeck)	£ 28.00p

Notes on Software requirements
The following programs have a minimum SGC card requirement: P-Word, Qword, Big Britain MAP for Q-Route

RWAP Services
178 Newtown Road, Bedworth, Warwickshire, CV12 8QN, United Kingdom. Tel: +44 2476 490616 (From the UK dial: 02476 490616)
Website: http://www.rwapsoftware.co.uk
We accept:

PayPal VERIFIED NOCHEX APPROVED PREFERRED PAYMENT

(For PayPal please add 4% to the total price. Cheques in £ sterling made payable to R. Mellor)

Looking back to Simon Goodwin's DIY Toolkit series from QL World. If we look back to the February 1988 issue, we see his articles about GETHEAD and SETHEAD commands. Having opened a channel to the file, the GETHEAD command fetches the 64 byte header in to a buffer in memory:

```
100 INPUT 'Filename:';filename$
110 OPEN #3,filename$
120 buffer = ALCHP(64)
130 GETHEAD #3,buffer
140 PRINT'FLEN File length =';PEEK_L(buffer)
150 PRINT'FTYP File type   =';PEEK(buffer+5)
160 PRINT'FDAT Dataspace   =';PEEK_L(buffer+6)
170 PRINT'FXTRA information=';PEEK_L(buffer+10)
180 PRINT'FUPDT update date=';PEEK_L(buffer+52)
190 CLOSE #3
200 RECHP buffer
```

To alter the values you can poke new values into the header which has been copied into memory and then use SETHEAD to write out the new header, e.g. to change the dataspace value:

```
182 POKE_L buffer+6,10240 : REMark 10KB dataspace
184 SETHEAD #3,buffer
```

Note that for SETHEAD to work, line 110 must use an OPEN command, not an OPEN_IN command.
Line 184 sends 64 bytes to the file header from the given address in memory.

When you poke values into the 64 byte header buffer, you MUST be very careful what you change. It is all too easy to cause havoc. Consider what might happen if you POKE_W a value of 200 into the filename length word 14 bytes from the beginning. The QL only allows a 36 character filename length at the very most, so the effect may be a little unpredicatble if not disastrous!

One possibility is a backup program. Since the header allows for an update date and a backup date, it is reasonable to compare the two dates to see if the file has been changed since the last backup was made. Obviously you have to ensure your QL clock is at the correct date and time!

1. Make a backup copy and set the backup date stored 60 bytes from the start of the header of the original file to the time of the backup.

2. Copy the file onto the backup disk.

3. Next time you make a backup you simply load the header into the buffer in memory and compare dates:

```
REMark COPY a file to backup disk ONLY if modified
REMark since it was last backed up
IF PEEK_L(buffer+52) > PEEK_L(buffer+60) THEN
 REMark update date is greater than backup date
 REMark so it has been modified since last backup
 REMark COPY the file to backup disk
 COPY filename$ TO <backup filename>
 POKE_L buffer+60,DATE : REMark new backup date
 SETHEAD #channel,buffer
END IF
```

The above is not a working piece of code of course, I leave that to you! It is probably not worth writing such a backup utility unless you fancy the challenge since there are perfectly good backup programs for the QL already.

Front End

Here's a useful little example of the use of the FTYP function. This program is a very simple little front end for your floppy disks. It lists files which are executable programs on a disk. It reads a list of filenames by sending the output of a DIR command to a file called ram1_TMP (so you must have a ramdisk). Note that it won't work if there are directories on the disk since the DIR command adds ' →' to the filenames on lines which list directory names.

```
100 CLS : CLS #0
110 INPUT #0,'Which drive? ';drive$
120 DIR \ram1_tmp,drive$
130 OPEN_IN #3,ram1_tmp
140 INPUT #3,t$ : REMark skip medium name
150 INPUT #3,t$ : REMark skip medium capacity
160 PRINT drive$;' contains the following
    executable programs:'
170 REPeat program
180   IF EOF(#3) THEN EXIT program
190   INPUT #3,t$
200   IF FTYP(\drive$&t$) = 1 THEN PRINT t$
210 END REPeat program
220 CLOSE #3
230 DELETE ram1_tmp
```

FOP_DIR

A better way to step through file headers is to use the FOP_DIR function to open a channel to the directory of a given drive and regard the 'directory' as a large file with 64 byte entries for each file. Here's an example program to do this. Rather than the usual simple DIR listing it shows file type, filename, file length and file update date – my very own version of the WSTAT command!

It opens a channel to the directory of the drive you enter. It then steps through each 64 byte entry picking up the details as it goes along. It uses the BGET\ command to set the file pointer

position within the directory as required, checking that it hasn't reached the end in line 190.
Since basic has no function to get a long word from a file, I wrote a little function to fetch 4 consecutive byte values and multiply them to a long word value.

The one difficult bit is identifying 'gaps' in the directory where a file has been deleted. This program assumes that a directory entry having a filename with a length of zero and a file length of zero is a deleted file, and so does not print that entry.

```
100 CLS : CLS #0
110 INPUT #0,'Drive? ';drive$
120 ok = FOP_DIR(#3,drive$)
130 IF ok < 0 THEN PRINT #0,'Oops error ';ok : STOP
140 file_postn = 0
150 PRINT'TYPE FILENAME  LENGTH  UPDATE DATE'
160 REPeat program
170   REMark point to filename length
180   BGET #3\file_postn
190   IF EOF(#3) THEN EXIT program : REMark directory ended
200   fl = Get_A_Long_Word(#3)
210   :
220   REMark point to file type byte
230   BGET #3\file_postn+5
240   BGET #3,ft
250   :
260   REMark point to filename
270   BGET #3\file_postn+14
280   GET #3,filename$
290   :
300   IF filename$ <> '' OR fl <> 0 THEN
310     REMark not a deleted file
320     REMark point to file update date
330     BGET #3\file_postn+52
340     fud = Get_A_Long_Word(#3)
350     :
360     PRINT ft TO 5;filename$;'  ';fl;'  ';DATE$(fud)
370   END IF
380   file_postn = file_postn + 64 : REMark next entry
390 END REPeat program
400 CLOSE #3
410 STOP
420 :
430 DEFine FuNction Get_A_Long_Word(channel)
440   LOCal a,byte(4)
450   FOR a = 1 TO 4
460     BGET #channel,byte(a)
470   END FOR a
480   RETurn 256*256*256*byte(1) + 256*256*byte(2) + 256*byte(3) + byte(4)
490 END DEFine Get_A_Long_Word
```

Here are some suggestions for improving the above routine a bit - your project to keep you occupied until the next issue comes out!

1. instead of the file type number, print a symbol before the filename to indicte the type, e.g. E for executable, '>' for a directory.

2. the update date isn't applicable to directories.

3. the program doesn't list files in sub-directories, it would need to call itself or a routine like itself to read the content of a directory then return to itself to complete the current directory (refer to previous articles about recursion in past QL Todays!)

4. the output looks a little bit messy, so arrange the output in neater columns.

Start Here

Essential Information For 21st Century QLers

Part III: Hard Drives (2)

by Roy Wood & Derek Stewart

In this issue we will continue the hard drive theme by looking at other hard drive systems for machines that are not QLs. I am grateful to Derek Stewart for his contribution on Q40/Q60 hard drives included here. This is really how I would like this series to work. I am looking for contributions from other writers on subjects I may not be so familiar with. If there is something that you feel you could cover do let me know and I will be happy to include it.

QPC2 and QXL

I will lump these two together because QPC2 uses a more sophisticated version of the original hard drive system set up for the QXL Card.

The Genesis of the QXL.WIN

When the QXL Emulator Card was first introduced by Miracle Systems it was a bold and very interesting idea. Stuart Honeyball had, in fact, put a separate computer into a PC. The QXL card had its own processor and ram and just used the PC's peripherals as I/O. In many ways this was an innovative design and required not only a good hardware design but also posed a taxing software problem. Somehow you had to get a 68xxxx system to co-exist and communicate with 386 and 486 chip systems.

Tony Tebby handled this very well and it was the birth of and infant that grew to be SMSQ/E. Once you had the I/O talking to the board the next problem was handling the storage media. The SMSQ Operating System for the QXL cards ran in DOS mode and had direct access to any of the drives connected to the host computer. It could, therefore, see both the floppy and hard drives. It had drivers for the floppy drives which could operate in both DOS and QL mode so you could read disks in either format from inside SMSQ. You could also write to these disks provided you observed the rules for whatever type of drive that you were using at the time. If it was a QL disk you had a limit of 36 characters in the file name and if it was a DOS disk you had a limit of 8 characters followed by a '.' and then an optional three character file type extension. The same limits are also seen in QPC2 which, although it runs under the O/S of the computer (which can be Windows 98/Millennium/2000 or XP) still has to adhere to the eight character '.' extension rule for non-QL floppies. This is because the floppy disks themselves, when formatted for use on a PC, have the old style File Allocation Table (FAT) and that does not allow anything else. Windows fudges this to allow longer names on its hard drives and, in Windows 98 the system is called FAT32 (referring to the 32-bit nature of the newer FAT). Windows 2000 and XP can use NTFS a more stable system developed from the Windows NT O/S developed for servers and network system. Windows allows drives to be partitioned (i.e. split into sections and 80Gb drive can be made up of four 20mb partitions for instance. Once this is done and the partitions are formatted Windows will assign a drive letter and then not show you what disk it is on unless you force it to. It names the drive from the letter C so the first one - the one from which it boots, is called 'C:\' ('A:\' and 'B:\' are reserved for floppy drives and, since PCs only ever have one floppy drive 'B:\' rarely gets used)

You do not really need this background knowledge of how the file systems operate to use the QL emulators but it is helpful to understand what the system is sitting on. There has been a lot of criticism in the past of the QL's 36 character limit but it is just a throwback to the lack of foresight that is traditionally the way that systems develop. To be honest, in comparison to the DOS file system, ours was a lot more flexible in its time. Our problem was that we failed to tackle it when it became a problem although, if we had, I'm sure that Tony Tebby's solution would have been a lot more elegant than that adopted by Windows. By the time we did start to look at it many of the programmers that would have had to adapt their work to accommodate a newer system had left the QL-scene. Mind you there are still plans afoot to adapt the system.

All of this preamble helps to explain a, sometimes baffling, message that occurs when you want to copy a file from a hard drive partition to a floppy. If you have a file called

WIN1_LETTER050705_DOC

and you try to copy that to a DOS format floppy you get an error message which reads 'Win1_letter050705_doc not found'. This, of course, is nonsense because you can both see and open the file on the hard drive. What it is saying to you is that you are trying to copy that file and are breaking the eight characters '.' three character rule. That actual file name is 12 characters (it ignores the WIN1_ bit) and it does not recognise '_' as a separator between the filename and the file extension. change this to

```
COPY WIN1_LETTER050705_DOC to
 flp1_le050705.DOC
```

and it will do it.

Hard Drive Creation

Both the QXL card and QPC2 emulator can create an area or areas on the hard drive(s) that can be used as a virtual hard drive. The process of doing this has cause many a heart flutter and panic amongst users unfamiliar with the way it is done. There are two things that this system does not do. Firstly it does not format your hard drive or any part of it and secondly, it does not partition your drives or, even, need a partition program to create a space for it to exist. All that happens is you create a large file on the target drive and this seen by the QL system as a hard drive. The size and position of that file are completely under the control of the user in QPC2 and, also, in SMSQ/E v3.xx for the QXL. Earlier versions of SMSQ/E and SMSQ for the QXL had fixed drives. Let me explain.

The active Operating System for both the QXL and QPC2 is SMSQ/E. In the case of the QXL the firmware and the card itself do all of the setting up of the host system to allow SMSQ/E to run and, in the case of QPC2 it is the QPC2 program that does the same job. In SMSQ/E there are a fixed number of hard drive 'slots' - WIN1_ through to WIN8_. In earlier versions of the QXL card these were all set to fixed drives:

WIN1_ was **C:\QXL.WIN**
WIN2_ was **D:\QXL.WIN** etc.

If you had only one drive or partition and wanted to have two or three of the QXL.WIN files you had to use an old DOS-command called SUBST to create virtual drives. Very Messy and not possible on systems like Windows 2000 or XP which do not run on a DOS base. The drive allocation for SMSQ/E for the QXL is now configurable and can be altered in the SMSQ/E config block. The configuration of QPC2 is done from its opening screen but it still configures SMSQ/E and it is in the SMSQ/E config block that this information is stored. You can access this by clicking on the 'Devices' Icon on the main QPC2 startup screen. From now on I will talk about the devices from a viewpoint of both systems and indicate where any divergence may lie.

In order to create a QL hard drive on your PC drive it must first have a name. Both the QXL SMSQ/E and QPC2 come configured as in the example above but this assumes you have 8 hard drives or partitions to put each of the QXL.WIN files on. Since the first of these is C:\QXL.WIN and your primary drive is almost always C:\ you can go ahead and format that one straight off. First check the amount of free space on the drive and decide how large you think your QL hard drive will need to be. 100MB should be more than enough for the average user so, if you have enough space available (don't forget this file will exist all the time and will permanently occupy that 100MB of space on your hard drive), let us go ahead and format it. Start the emulator and type, at the command prompt:

```
WIN_FORMAT 1
```

Then hit ENTER. Nothing appreciable will happen. All you have done is to remove the format protection from that drive within the system. The format protect will remain off for the rest of the time that you are using the emulator but will be reset to be protected if you close it down and restart it. You can manually reset the protection by typing:

```
WIN_FORMAT 1,0
```

(but don't do it if you want to format next).

To format, type next:

```
FORMAT WIN1_100
```

This is the command to create a 100MB File called QXL.WIN on the C:\ drive. Before this happens, however, there is a further protection from accidentally formatting a drive. A message will appear that reads '**To format WIN1_ type XX**' where '**XX**' represent a randomly generated pair of letters. If you enter those two letters at the command line the drive will be created and you will get a Format message detailing the number

of sectors in the output window on the screen. If you now quit back to Windows and look at the directory for WIN1_ you will find a file called QXL.WIN that is 100MB in size. You can go back to the emulator and start copying QL files to your new 100MB drive.

But what if you want to have more than one hard drive for your system? If you only have one drive with one partition on it you will have to change the list. Using either the QPC2 startup screen or Menuconfig, change the name given to WIN2_. As an example we will change it to be QXL2.WIN. In practice it can be anything you want but it is sensible to keep it as something you will recognise later just in case you lose the original QPC2 and have to reset the system from scratch. Once you have reconfigured the name you can go ahead and create the new drive. Don't forget to save it or, when you reboot the emulation the change will be lost. In QPC2 you can make a change in the startup screen and carry on without saving. The change will be in force during that session but, if you quit the emulator and then restart it, the change will be lost. A useful thing if you want to make a change for just one session but confusing if you don't.
This time we type:

```
WIN_FORMAT 2
```

because it will be formatting WIN2_ and carry on with the same procedure as before:

```
FORMAT WIN2_50
```

Will give you a 50MB drive for WIN2_ and create a file on the PC's drive called QXL2.WIN.
You can repeat this for all 8 of the WIN drives in the list, changing the drive names and locations appropriately. If you have more than one drive or partition the QXL.WIN files can be anywhere on these too.

Other Devices

You cannot, of course, create or write to a QXL.WIN file on a CD ROM. You can, however, read a QXL.WIN file on that device by changing one of the hard drive allocations to locate that file. For example, if you CD_ROM is E:\ and it has a file on it called QXL.WIN you can change SMSQ/E to make WIN8_ be 'E:\QXL.WIN'. It will then read that drive and it is able to copy files from it to your other drives.

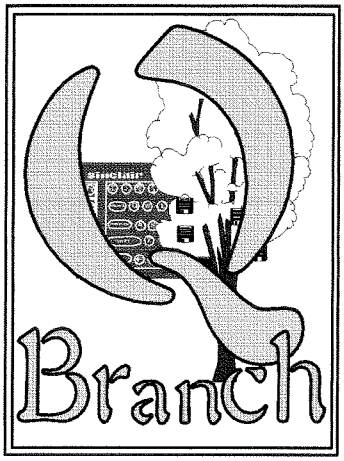
One important point here. If you copy that entire QXL.WIN file to a hard drive and then try to change any of the files and save them you will find, when you look at them again after a reboot, they will not be changed. This is because a CD-ROM is exactly that, Read Only Memory. Its files are flagged automatically as Read Only and any changes to them are discarded. Windows knows this but the QL emulator does not. It caches the changes you have made and you can go back and look at them but they go away when the cache is flushed. If you want to do this you can either copy all of the files from the QXL.WIN-file from within the emulator (we do not have a write protect flag it is only the QXL.WIN file itself) or copy the QXL.WIN file in Windows, right click the file, choose 'properties' and then turn off the write protection. You can then write to it as normal.

You can also make QXL.WIN files on removable disks such as ZIP drives, SYQUEST disks, USB memory sticks, and any of the flash memory devices that can be plugged into a card reader. The method is just the same as above. For example, if your USB memory dives is seem by the PC as Drive G:\ change a will drive, WIN8_ for example, to be G:\QXL.WIN and repeat the formula above to create the file.

It is important to make the QXL.WIN file slightly smaller than the capacity of the drive you are putting it on so it has room for its file map and utility software. It may also seem self evident, but make sure the device has a medium in it. Windows may see a USB ZIP drive as drive F:\ but it will also see it as that even if there is no disk in the drive. I have had a user try to format the device with no drive in it. It is also important to remember that Windows will change the drive letter of it's own volition depending on how it sees the devices on boot up. If you have a Card Reader and a USB ZIP drive and you plug them in after boot up the first device may get the lower number but this is not a hard and fast rule. If you are using these devices always check before running the emulator that the drives are where you expect the to be.

That seems have used up all of the space I have for this issue so I will have to leave the subject of Drive commands and Backup to the next article. Once again I welcome any feedback and contributions to this series.

Q Branch



Text 87

£ 79.00

Typset 94 £ 29.00
Fountext 94 £ 39.00
2488 drivers £ 29.00
Epson ESC/P2 drivers £ 26.00

Text 87 High Colour Patch Available Now

£9.00

PROGRAMMING

QD 2003	£ 49.00
QD + QBasic	£ 63.00
QD + Qliberator + QBasic	£ 104.00
Qliberator	£ 50.00
Master Spy v 3.3	£ 30.00
QPTR	£ 32.00
Easyptr pts 1 & 2 v4	£ 41.50
Easyptr pt 3 (C library)	£ 14.00
QMake	£ 18.00
QMon / JMon	£ 22.00
Basic Linker	£ 22.00
DISA 3	£ 34.00
QMenu	£ 16.00

Price Drops

Since the leaves are turning brown and the autumn colours are setting we though it would be appropriate to include the full colour version of SMSQ/E for the Aurora with every purchase. This means there is now only one version and there will be no more confusion about which one you are running.

We are also dropping the prices on SMSQ/E for all platforms including QPC2 this Autumn. For full details see the relevant boxes in these pages.

QDT is bringing out its first upgrade for the QL is 21 . This should include drag and drop and improvements to the Icon drawing routines. See us at a show or contact us for details.

Print to any printer from QPC2

QPCPrint £ 27.50

QDT

£ 30.00
+ P&P
£2.00 (UK) £2.50 (EU) £3.00 (ROR)
Requires SMSQ/E to run

SMSQ/E

Gold Card / Atari / QXL Version
Aurora High Colour Included

£ 27.00

Version 3.10 out now!
Aurora colour upgrade
£ 13.00

Get Cueshell for only £15.00 with any copy of SMSQ/E

EasyPTR v4

High colour support, Major re-write!
Full Program Pts 1&2

£ 41.50

Upgrade from any Version £27.50
Needs SMSQ/E v 3.10

UTILITIES

FiFi 2	£ 21.00
QSup	£ 30.00
QSpread 2003	£ 51.00
Cueshell 2	£ 15.00
Qload / Qref	£ 15.00
Disk Mate 5	£ 16.50
QPAC 1	£ 22.00
QPAC 2	£ 42.00
QTYP 2	£ 31.00
QLQ	£ 30.00

QL Keyboard Membranes

Available Now !

£ 17.50 ea + P&P

Q Branch

Feeling out on a limb ?
Reach out for Q Branch.
Suppliers of Quality QDOS/SMSQ products
Hardware and Software.

Tel +44 (0) 1273-386030 fax +44 (0) 1273-430501
Mobile +44 (0) 7836-745501
email qbranch@qbranch.demon.co.uk web : http://www.qbranch.demon.co.uk

20 LOCKS HILL, PORTSLADE,
E. SUSSEX. BN41 2LB. UK.

Q Branch

Hardware in Stock Now!

We have a rotating stock of 2nd user hardware. Call us for details.
New Aurora boards in stock!

QPC 2 v3.30

Now Only £ 42.00

QPC2 and QPCPrint Bundle

£ 63.00 + postage

Offer ends December 24th 2005

These programs are now High Colour
QMAke
WinEd
QPAC 1
QPAC 2
QSUP
<<<<<<NEW>>>>>>
SuQcess
Disk Mate 5
Please send old master disks and £1.60 to cover return postage and copying fees.

Hardware

Second user items are are sometimes available from us.
Call for details.

R'cycld SuperGold Card	£ 110.00*
Recycled Gold Card	£ 45.00*
Recycled Aurora	£ 65.00*
Qubide	£ 45.00*
Qplane	£ 5.00
Recycled superHermes	£ 65.00*
Aurora cables	£ 3.00
Aurora rom adaptor	£ 3.00
'Arfa Braquet'	£ 8.00
MC plate	£ 6.50
New Aurora M/b	£ 70.00
New Aurora M/b w 8301 & Minerva	£ 80.00
Qubide upgrades to version 2.01	£ 8.00

* when available. Call for details

These Programs are paid Upgrades:

QSpread 2001 to 2003	£ 10.50
QD 98 to 2003	£ 10.50
QPC2	-
update from v3.xx	Free
update from v2	£ 13.90
update from v1	£ 34.00

Return Master Disk With Order

Q Branch Programs

The Knight Safe 3	£ 35.00
upgrades from previous versions	£ 5.00
Q - Count Pointer driven home accounting	£ 25.00
Q - Route v1.08C Route finding programme	£ 25.00
The Fractal Collection	£ 35.00

Post and Packing is included with Software Prices Unless Otherwise Stated.

VISA

We accept payment by Visa, Mastercard, Maestro and Switch. We can also assept sterling cheques drawn on a UK bank or payment direct to our UK account at Natwest. Account: QBranch # 84534826 Sort Code 60-17-01.

MasterCard

Q40 / Q60 Hard Drive systems by Derek Stewart

Qx0 Hard Disk Partitioning

The definition of hard disk partitions on the Q60/Q40 is really a pain from SMSQ/E. The only partition software around is the rather difficult to use MKPART by Tony Tebby.
Tony expects everyone to know how sectors to Kilobytes and Megabytes are on the hard drive. Also you must define all the hard drive at once.
Tony Tebby's documentation recommends that partition sizes of 256MB should be used on hard drives, this has not changed since the Q40 first came out.
The first 3 partitions using MKPART are user definable, assuming you know the size in sectors. The 4th and last partition must use all of the remaining space. So if you have 20GB hard drive, you have to define:
Partition #1 : 256 MB
Partition #2 : 256 MB
Partition #3 : 256 MB
Partition #4 : 19.25 GB

Which means that, potentially you could have WIN4_ as a 19.25 Gb disk partition which contradicts Tony's documentation.
I do not use MKPART as it is not very flexible. I normally boot the Qx0 machine with Shoestring Linux that is bootable from a CDROM disk and use the Linux atari-fdisk program which allows many types of disk partitions to used, including QWA type partitions for use on SMSQ/E
I normally define 3 partitions of 512Mb in size for SMSQ/E and leave the remaining partition to used for Linux.
The size of the SMSQ/E partitions is double that of recommended on Tony Tebby's documentation. But by experimenting I found that with 512Mb partitioning and the newer version of SMSQ/E v3.xx with no slave blocks, then disk access was acceptable. There has been no recommendation from the authors of SMSQ/E concerning disk partition sizes.
Once the partitions have been defined, use the standard WIN_DRIVE and WIN_FORMAT commands to format the partitions as SMSQ/E drives. That is:

```
WIN_DRIVE win_number, IDE_Drive_Unit_Number,
partition_num
```

Where:
`win_number` = WIN1 to WIN8
`IDE_Drive_Unit_Number` = IDE drive nr. 0 to 3
0 = Primary Master
1 = Primary Slave
2 = Secondary Master
3 = Secondary Slave
`partition_num` = drive partition number 1 to 4
Note: Maximum of 4 partitions can be defined on the drive.

For example would be:

```
WIN_DRIVE 1,0,0 : REMark 1st partition
on the primary master drive
WIN_DRIVE 2,0,1 : REMark 2nd partition
 on the primary master drive
WIN_DRIVE 3,0,2 : REMark 3rd partition
 on the primary master drive
```

If the partition number is left out of the WIN_DRIVE statement, then all of the drive is assumed. E.g.

```
WIN_DRIVE 4,1 : REMark All of the drive
 on the Primary Slave
```

This is useful for Compact Flash disks, Zip Disks and Syquest Disks

Next the formatting of the SMSQ/E partitions. SMSQ/E has a safety feature to prevent accidental formatting of the partition. So the command WIN_FORMAT has to be used.
The definition of WIN_FORMAT is:

```
WIN_FORMAT win_number, protection_state
```

Where:
`win_number` = WIN1 to WIN8
`protection_state` = 0 or 1
0 = Protect partition from being formatted
1 = Allow partition to be formatted

So to format WIN1_ use:

```
WIN_FORMAT 1,1
```

then use the FORMAT command:

```
FORMAT win_number, drive_name
```

Where:
`win_number` = WIN1 to WIN8
`drive_name` = Standard QL style drive naming.

The format command will generate the QWA type disk structure for SMSQ/E.
I then type in `WIN_FORMAT 1,0` this may not be necessary, but this is just to be safe.
The WIN drive are now ready for use.
The WIN_DRIVE commands must be used to define all the WIN drives on boot up, but they can be changed about so you can have different type of SMSQ/E systems running.

by Dilwyn Jones

PSION XCHANGE PROBLEMS

We still get asked many questions about Quill and Xchange and it is easy to forget that these old favourites are still used by many QL users. Here's a small selection of answers I've given to questions asked about Quill and Xchange over the last year or two.

1. ***When I try to access the help files in Quill in Xchange on a QL it doesn't seem to work now that I'm running it from hard disk. It used to work fine when I ran it from floppy disk.***

Xchange needs to be able to find files which have names ending with _hob (which I think stands for Help OBject) - quil_hob for example. Xchange looks up the DATA_USE and PROG_USE default drive settings when searching for these. If you have placed Xchange in a directory called Win1_Xchange_ for example, you can help things along by setting DATA_USE win1_Xchange_:PROG_USE win1_Xchange_ If you are using version 3.90L of Xchange for the QL, the boot program sets this for you in line 190 of the copy I have to hand. When you start Xchange, it shows what the default and help drives are on the right hand side of the opening screen, so you can tell where it it is likely to look for the help files. The reason it used to work is that on floppy disk systems, DATA_USE and PROG_USE usually point automatically to FLP1_ (same place as your copy of Xchange), whereas on a hard disk system they may point to WIN1_ (whereas your copy of Xchange is probably in a directory called Win1_Xchange_)

2. ***Does the same apply to the printer drivers? I don't know if my printer driver is being ignored or simply not found.***

The printer driver system in Xchange Quill is rather more complex than in the original version of Quill.

Quill can use individual printer drivers, apart from the default printer driver named "xchange_dat". The individual printer drivers are name "quil_dat", and the task name followed by "_dat". The latter (task name & _dat) takes precedence, followed by the former (quil_dat), followed by "xchange_dat". In addition to this, each driver will be searched for on the default drive, then on the drive on which the program searches for help. So there are a number of possible setups and combinations which can hinder this depending on how you have set up the printer driver. If you only use a printer driver called xchange_dat and none of the other named files above, and the xchange_dat is on the default drive, there shouldn't be a problem.

3. ***When I start Quill in Xchange the little boxes and lines are offset from the commands and prompts at the top of the screen. It looks untidy but doesn't seem to crash the program.***

Xchange and Quill were written in a time when 512x256 pixels was the only screen display size available to QL users. It would appear that Quill (or possibly much of Xchange) draws its graphics in a bit of a non-standard way, writing direct to the screen instead of going via the operating system. On modern emulators, Aurora cards, Q40 or Q60, QXL cards and so on the screen display may well be a different size to the original QL screen and possibly at a completely different location in the computer's memory, so the program accidentally draws these lines in the wrong place on the screen because it miscalculates where to put them on a screen display it does not fully understand. There isn't really anything you can do to correct this behaviour, but fortunately it does no permanent harm other than making a bit of a pig's ear of the display, and the effect can be much reduced by pressing F2 to remove the prompts area if you know your way around Quill without needing constant help text (you can always switch it back on again with F2 if you need to be reminded how to use a particular command).

4. ***Somehow the display got messed up, but the program is still working, can I redraw the display?***

Yes, if your keyboard has an F10 key, press that. If not, press SHIFT F5.

5. ***As we haven't got manuals for Xchange, we'd like to try to add to the help files as we find out more about the program in case we forget what we have learned!***

The Xchange package includes a few SuperBASIC programs to help with this job. Look for programs called hob1_bas and hob2_bas to split

up the help text into individual pages and join them back together again after you have edited them in any text editor. Read the text file called hobutils_txt for more details. Note that you must limit line width in the help files to no more than 64 characters. For those who prefer to use assembler, there is also a SuperBASIC program called hob2asm_bas to help with the job.

6. Is it possible to work on more than one document at a time in Quill?

You need multiple incarnations of the program to do this. You might be able to do this with ordinary Quill if you have a program to tame its habit of grabbing all available free memory (e.g. if you use pointer environment, use the 'P' option in an EXEP or one of the hotkey extensions to limit how much that copy of Quill is to have, e.g. EXEP FLP1_QUILL,,P256 will start a copy of Quill and prevent it trying to grab more than 256kilobytes of memory). To work on more than one document, start another copy of Quill and then use CTRL C to switch between them, using SHIFT F5 or F10 to redraw the display if this does not happen automatically. Where this can in theory go wrong is that if two or more copies of ordinary Quill run short of memory and try to start a def_tmp file (Quill's temporary files on disk when they run low on memory) in the same place, some unexpected things may go wrong. In practice, as long as you are generous enough with how much memory each copy has available (256K is usually more than enough) it's unlikely to happen.

This problem need not happen with the Xchange version of Quill because it has a "front end" to cope with handling more than one copy of Archive, Abacus, Easel and Quill. This is the screen you see when you start the package, when it asks you to choose with SPACE which of the programs to select, then press ENTER to start it. I am typing this into Xchange Quill now and I suddenly realise I need to load another DOC file to check something in the instructions. So, with the commands on at the top of the screen in Quill, I see the prompt to press F6 for Xchange. Pressing F6 takes me back to the Xchange menu, from where I can select the option which says 'QUILL - NEW TASK' and this will start a fresh copy of Quill while the first copy stays in memory. Now load the second document (if you are unsure about this it might pay to save the first document first just in case something goes wrong). If you want to pop into the first document for a moment, press F6 to take you back to the Xchange menu, select the other copy of Quill (hopefully you gave them different names when you started them such as quill1 and quill2 to help you tell which is which!) and carry on doing this as required. When I first started using Xchange many years ago I only ever used one copy because it had never occurred to me that Xchange could maintain more than one copy at a time!

7. Why do the Psion programs restrict me to short filenames of 8 characters, an underscore and a three character extension?

These programs were written before the QL design was complete and they use a filename format which is a mix of CP/M or MSDOS style (8.3 filenames) and early QDOS style which uses underscore and short drive names with no directory names. Xchange does away with this limit and you can have filenames which include drive names, directory names and filenames longer than 8 letters long as long as you don't go over the total filename length which is allowed by the QL - a maximum of 36 characters in total before you add on the drive name (41 if you include the drive name). For me, this was a good reason to use Xchange rather than ordinary Quill.

8. Can I control the amount of memory Xchange uses, even though I don't have pointer environment?

The copy I have defaults to 310K of memory if just started with a simple EXEC command. If you have Toolkit 2 (and it's on just about every QL system these days) you can specify in an EX command how much memory Xchange is to have:

```
EX WIN1_XCHANGE_XCHANGE;"200"
```

that would allow it just 200kilobytes, for example.

9. I use a display size larger than 512x256 pixels. Xchange always starts in the same place, can it be moved to a different part of the display?

Yes, press CTRL F4 (hold down the CTRL key and tap the F4 key). A little "double square" symbol appears and this can be moved around the screen with the cursor arrow keys. Press SPACE or ENTER and this is dropped at the current location and the Xchange display moves there. This can be useful with some old programs which cannot be moved around the screen - you can move Xchange out of the way so that Xchange uses on part of the screen while the other program stays stuck at the top left of the screen.

Comfortable PAR assigment

by Jochen Merz

Many issues ago, I published my short PAR printer selection program for QPC2. You can view the current printer assignments and, if required, change the printer(s). It was not just more comfortable, it dates back to the times where QPC2 allowed "only" 4 printers to be assigned to PAR1 to PAR4, and I use more - so I wanted to re-assign them easily. Marcel then changed the possible assignments to a maximum of 8, but you can only assign the first four through the QPC2 configuration menu.

I assign PAR8 permanently in my BOOT menu, and keep PAR5 to 7 as "spares". Now, with QPCPrint, these spares are no spares anymore (I bought some Canon Pixma's cheaply before Canon introduced the new X200 models with protected, much more expensive ink). At present, there are 10 printers in use in the house, so I need to be able to re-assign them if required, and I also need to be able to specify whether they should use QPCPrint or not. You may think: why not use QPCPrint on all printers as it is so well working. The reason is: two printers do not use ESC/P2 at all - I have a small EPSON POS printer (TM-U295) to print credit card slips, address labels etc. - and it is not recognised by Windows at all. Its language is ESC/POS. I have connected it in RAW mode and print directly to it. The other printer is my old EPSON Laser printer, capable of various printer languages including the EPSON Page printer "GQ" mode. Most manuals are printed on it in this GQ mode with a dedicated text87 GQ printer driver; therefore a general pass through QPC Print would result in garbage on this printer. When I switch this laserprinter to Laserjet mode, QPCPrint prints happily on it.

So it became necessary for me to see which printer was set to use QPCPrint and which one wasn't. And I need to be able to select whether an assigned printer should use QPCPrint or not.

I have added a few lines of code to the old printer selection program - here it is:

```
100 JOB_NAME "Printer Select"
110 CLOSE#2,#1,#0
120 OPEN#0,con
130 WINDOW#0,460,200,30,30
140 BORDER#0,1,4:PAPER#0,7:CLS#0
150 OUTLN
160 :
170 REPeat loop
180 DIM l$(8,60)
190 FOR x=1 TO 8
200 l$(x)="PAR"&x&": "&PAR_GETPRINTER$(x)&FILL$(" ",60)
210 IF PAR_GETFILTER(x):l$(x,50 TO)="[QPCPrint]"
220 END FOR x
230 l$(0)="PAR1-PAR4: all 4 same settings"
240 :
250 choice=LIST_SELECT("Change PAR assignment",l$)
260 IF choice=-1:QUIT
270 :
280 DIM p$(PAR_PRINTERCOUNT,80)
290 FOR p=1 TO PAR_PRINTERCOUNT
300 p$(p)=PAR_PRINTERNAME$(p)
310 END FOR p
320 :
330 printer=LIST_SELECT("Select printer",p$(1 TO ))
340 IF printer=-1:NEXT loop
350 f=1:t=4:IF choice>0:f=choice:t=f
360    qpcpr=ITEM_SELECT("Select    print    mode","Use
    QPCPrint?","Yes","No")
370 IF qpcpr=2:qpcpr=0
380 FOR s=f TO t
390 PAR_SETPRINTER s,p$(printer+1)
400 PAR_SETFILTER s,qpcpr
410 END FOR s
420 END REPeat
```

It is self-explanatory. Just type it in, save it as, say `win1_PARSEL_bas`, and then execute it whenever required (e.g. `EX win1_PARSEL`).

You have the option of changing the settings of PAR1 to PAR4 in one go (that used to be useful when I was travelling with my laptop and I had just one portable printer connected) ... you may as well change all 8 printers in one go... I leave it to you to change the program listing if you want to do this.

Letter-Box

Harry Latham writes...

I have just received the latest edition of QL Today and read about your new appointment and the resignation of Dilwyn. I also read David Dereham's article and I must confess I am very much like his friend. (I am 77, bought my QL in 1984 and I am stuck in my old ways)
I use mainly the Quill and Abacus and a bit of Easel. My daughters also had QL's for a number of years but sadly they have jumped ship and gone to Microsoft
Before going further. On behalf of the many QL Today readers like me, I would like you to pass on our thanks to Dilwyn for keeping us up to date with what is happening to QL even if we remain quiet about it and don't seem to respond very much.
Until his death, Felix Fonteyn looked after us and got us up to Tower boxes, Super Gold Cards, Twin Flopppies etc and Bill Richardson has also helped us. Rich Mellor has more recently sorted out my printer problems.
Geoff, it doesn't take much for something in an article to go over my head and from then on I am usually lost. I don't know whether or not it is possible but ideally, I would like someone to take my system from me and hand it back to me with the Pointer Environment and Access to the Internet working. I would be very happy to pay for this.
Your article on "Promises" moved me to thinking that I should attend the "QL is 21 Show" in Portsmouth on 29th/30th October. If something could be worked out I could bring the equipment with me.
I wish you well in your new position and hope that it will give you great satisfaction. I apologise for putting my problems on your desk so early in your appointment but your first issue did something to move me to write to you

John Gregory writes...

I read Roy Wood's reference to QCEDEZE in the last issue which leads me to report a recent experience with that program.

A Quanta member recently requested from me a copy of the latest Quanta Library CD. After receiving it he reported that it would not open and read the 130Mb QXL.WIN file. He was using version 1.12 of QCDEZE. The version in the Quanta Library is 1.12a. I confirmed his findings using version 1.1.2 on my Aurora setup and then repeated the exercise with version 1.12a and the QXL.WIN file opened correctly. I then recommended that the member copy this latest version of QCDZE from the Library CD to his Aurora via a floppy disc using QPC2 on his PC. The program then worked correctly as expected. The conclusion is that if you experience problems, check that you are using the latest version!

Small Ads

FREE GIVEAWAY

I offer free of charge an almost complete collection of QL USER/QL WORLD from Dec 84/Jan 85 to May 94 (called Vol. 3 Issue 5)
The issues Mar 91, May 92 are missing. A few issues are photocopies.
Parcel postage at your charge.
E.P.Braun
E-Mail: epbraun@libero.it

FREE ADS

I would like to remind you that small ads in QL Today are free of charge, as long as they are private and QL-related. So please consider sending an E-mail to **QLToday@J-M-S.com** before you decide to throw items away. I had recently enquiries from ex-QLers who came back to the QL scene and were searching for Pascal and other things which are not actively produced for the QL for many years. Old QL books etc are usually of interest to other QLers as well.
If you have several items, please specify what you want for all items together and for individul items ... especially if interested QLer live outside your country, then the postage for heavy items may be quite high, unfortunately.

TF Services

Compswitch

A UK 4-way trailing socket designed to switch off computer peripherals automatically when the computer is switched off, or (in the case of an ATX computer) when it auto-powers down. *Compswitch* has one control socket, and three switched sockets. Can be used with lights/hifi/monitors—ie a QL monitor can be used as a switch control.

Cost £24

superHermes

A major hardware upgrade for the QL

All Hermes features (working ser1/2 at 19200, independent baud rates/de-bounced keyboard/ keyclick) IBM AT kbd I/F // HIGH SPEED RS232 at 57600// serial mouse port and 2 other RS232 inputs// 3 I/O lines // EEPROM

Cost (including manual/software) .....**£90** (£92/£93)
IBM AT UK layout Keyboard.....**£11** (£13/£15)
Serial mouse.....**£8** (£8.50/£9)
Capslock/scrollock LED .....**£1** (£1.50/£1.50)
Keyboard or mouse lead .....**£3** (£3.50/£3.50)
High speed serial (ser3) lead.....**£4** (£4.50/£4.50)

Hermes available for £25 (£26/£27) Working ser1/2 and independent input, debounced keyboard.

SuperHermes LITE: All Hermes features (see above) + an IBM AT keyboard interface only.
Cost (incl keyboard lead) .....**£53** (£54/£55)

QL REPAIRS (UK only)

Fixed price for unmodified QLs, excl microdrives. QLs tested with Thorn-EMI rig and ROM software.

£27 incl 6 month guarantee

Minerva

The ORIGINAL system operating system upgrade

OTHER FEATURES COMMON TO ALL VERSIONS

DEBUGGED operating system/ autoboot on reset of power failure/ Multiple Basic/ faster scheduler- graphics (within 10% of lightning) - string handling/ WHEN ERROR/ 2nd screen/ TRACE/ non-English keyboard drivers/ "warm" fast reset. V1.97 with split OUTPUT baud rates (+ Hermes) & built in Multibasic.

First upgrade free. Otherwise send £3 (+£5 for manual if requd). Send disk plus SAE or two IRCs

MKI..£40 (£41/£43) **MKII..£65** (£66/£67)

MINERVA RTC (MKII) + battery for 256 bytes ram. CRASHPROOF clock & I²C bus for interfacing. Can autoboot from battery backed ram. Quick start-up.

QL RomDisq

Up to 8 mbyte of flash memory for the QL

A small plug in circuit for the QL's ROM port (or Aurora) giving 2, 4 or 8 mbytes of permanent storage - it can be thought of as a portable hard disk on a card, and reads at some 2 mbytes per second.
Think of it - you could fully boot an expanded QL, including all drivers/SMSQ etc off **RomDisq** at hard disk speed with only a memory expansion needed.

2 mbytes RomDisq.....**£39** (£40/£41)
4mbytes RomDisq.....**£65**(£66/£67)
8 mbytes RomDisq.....**£98** (£99/£100)
Aurora adaptor.....**£3** (£3.50/£4)

MPLANE

A low profile powered backplane with ROM port

A three expansion backplane with ROM port included for RomDisq etc. Aurora can be fitted in notebook case and powered off single 5V rail - contact QBranch for details. Two boards (eg Aurora and Gold Card/Super Gold Card/Goldfire fixed to base. Suitable for Aurora (ROM accessible from outside) & QL motherboard in tower case. Specify ROM facing IN towards boards, or OUT towards back of case.

Cost .....£34 (£35/£36)

I2C INTERFACES

Connects to Minerva MKII and any Philips I²C bus

Power Driver Interface 16 I/O lines with 12 of these used to control 8 current carrying outputs (source and sink capable)
2 amp (for 8 relays, small motors).....**£40** (£43/£44)
4 amp total (for motors etc).....**£45** (£48/£50)
Relays (8 3a 12v 2-way mains relays (needs 2a power driver).....**£25** (£28/£29)
Parallel Interface Gives 16 input/output lines. Can be used wherever logic signals are required.....**£25** (£27/£28)
Analogue Interface Gives eight 8 bit analogue to digital inputs (ADC) and two 8 bit digital to analogue outputs (DAC). Used for temp measurements, sound sampling (to 5 KHz), x/y plotting.....**£30** (£31/£32)
Temp probe (-40°C to +125°C).....**£10** (£10.50/£11)
Connector for four temp probes.....**£10** (£10.50/£11)
Data sheets.....**£2** (£2.50/£3)
Control software & manual (for all I/F).....**£2** (£2.50/£3)

QL SPARES

Keyboard membrane .....**no longer on sale**
1377 PAL .....**£3** (£3.50/£4)
Circuit diagrams.....**£3** (£3.50/£4)
68008 cpu or 8049 IPC.....**£8** (£8.50/£9)
8301/8302 or JM ROM or serial lead .....**£10** (£10.50/£11)
Power supply (sea mail overseas).....**£12** (£19/£23)
Other components (sockets etc) also available

Prices include postage and packing (Airmail where applicable) Prices are: UK (Europe /Rest of world). Payment by cheque drawn on bank with UK address,/postal order or CASH! I can no longer accept card payments as UK only does PDQ transaction. SAE or IRC for full list and details

22 Feb 03

29 Longfield Road, TRING, Herts, HP23 4DG
Tel: +44 (0) 1442-828254 Fax/BBS: +44 (0) 1442-828255
tony@firshman.co.uk http://www.firshman.co.uk

Anagrams

by Stephen Poole

Many years ago I wrote an Anagrams program to test my young daughter's wits. It was written in French although the method will work just as easily in any language. The routine uses a masking technique to save it having to repeat the same checks over and over again.
If you don't get the right solution first-time the program will tell you which letters are correct until you get it all right. I have always found that children thrive on programs which give them several attempts, as this develops their skills, whereas a simple 'Failed' will discourage them rapidly. (Indeed the children made astonishing progress on maths programs I wrote for them, which got them doing all sorts of arithmetic accurately, against the clock, in no time). It seems that children prefer the corrections of an anonymous computer rather than the admonitions of their parents, no matter how tactfullly done.

The routine uses case-independant character-comparisons, so as to render some of the anagrams more confusing, so don't worry about positioning CAPS LOCK. The code should be self-explanatory, but I have only put a limited series of words in DATA to keep the length of the program short enough to be printable. Enjoy yourself by adding extra words and their anagrams to the DATA-list. The program automatically counts the DATA-elements, so there is no need for you to do so. If you should compile long lists, why not let the Editor know, so that others can benefit by them. In any event, this program should keep you occupied for quite a few hours extending the lists, especially if you intend to ley your children use it.
Compiling anagram-lists is very absorbing. I couldn't resist the challenge of the last data-item! Any offers on **antidisestablishmentarianism** or **floccipaucinhilifipication**?

```
100 ::
110 REMark ANAGRAMS_bas by S.Poole. v10sept2004
120  CLEAR: OPEN#1,con_64: WINDOW 512,256,0,0: CLS: RESTORE 270: word_ct=0
130  REPeat loop: IF EOF: EXIT loop: ELSE : READ datum$: data_ct=data_ct+1
140  RESTORE 270
150 :
160 FOR anagrams=1 TO data_ct/2
170     READ word$,anagram$
180     REPeat try
190        AT 2,2: CLS 3: PRINT anagram$: AT 4,2: CLS 3: INPUT try$
200        Lg_ana=LEN(anagram$): Lg_try=LEN(try$): IF Lg_ana<>Lg_try: NEXT try
210        mask$=FILL$('*',Lg_ana)
220        FOR char=1 TO Lg_ana: IF try$(char)=word$(char): mask$(char)=try$(char)
230        AT 3,2: CLS 3: IF try$<>word$: PRINT mask$: NEXT try: ELSE EXIT try
240    END REPeat try
250 END FOR anagrams
260 :
270 DATA 'abacus','aSCUBA' , 'basic','Iscab' , 'computer','recutMOP' , 'disk','skid'
280 DATA  'edit','tide' , 'format','toFARM' , 'games','asGEM' , 'hash','shah'
290 DATA 'input','tinUP' , 'justify','fujiSTY' , 'keywords','skyROWED', 'load','oldA'
300 DATA 'merge','Egerm', 'next','tenX', 'open','nope', 'pause','USape'
310 DATA 'return','turner', 'save','vase', 'time','item', 'view','wive'
320 DATA 'window','WOWdin','yellow','wellOY'
330 DATA 'supercalifragilisticexpialidocious'
340 DATA 'IgoILIACifDRACULASpcEXITisPERILOUS'
```

Editor: I have tried the program without looking at it first, and it is entertaining. Steve has sent us more programs which will be published in the next issues - thanks a lot.

If anybody has a guess on Steve's two challenge words above, please mail them to QLToday@J-M-S.com

The QDOS Official Secrets Act

by Dilwyn Jones

A few years ago I had a chat with Jonathan Hudson at a Quanta workshop where he bemoaned the lack of publically available documentation for the QL.

A little later this was to inspire my QL Documentation CD, a pet project of mine where I gathered as much information as I could onto one CD with the intention of making it generally available. Thanks to people like Darren Branagh the CD was marketed and many copies issued.

Now, Quanta members can get hold of the CD at a substantial cost saving, another advantage of joining Quanta!

Recently, I set about updating this CD and found myself pleasantly surprised by the amount of content, so I thought it might make an interesting article in itself, listing all of the material I have gathered into one easy to access collection. At the time of writing (August 2005), the CD was up to v2.80

It is my happy duty to thank all those who have contributed material and scoured out useful material like the printer programming information (Alfred Kendall and Bruce Nicholls), Motorola assembler programming information (too many names to mention), not to mention those who scanned and OCRed manuals for older QL interfaces so that second user buyers stand a chance of being able to acquire replacement manuals. Thanks also to all those traders like Miracle Systems who gave me permission to include manuals for their products. Special thanks to Tony Firshman who kindly gave me ready to include manuals.

Thanks are due to Jochen Merz who has allowed me to make available several articles from QL Today, and to the authors of these articles for allowing them to be used.

Grateful thanks also to Laurence Reeves who has made available the sources for the Minerva ROM version 1.98, which will no doubt be of great interest to those who wish to tinker with the operating system and machine code generally.

The idea behind this CD is to provide a "one stop shop" for QL related documentation. With this in mind, if you have any documentation to provide that is not already listed here, please contact us so that we may include it in later editions of this CD.

Although most of the documents on this CD are in QL-readable formats (plain text or Quill DOC files for example), some of the more complex documents combining pictures, diagrams and text are to be found in Adobe PDF (Portable Document Format). While some of these may be viewed in Ghostscript for QDOS (ported to the QL by Jonathan Hudson), a copy of the Windows version of the Adobe Reader v5.0 program is included on the CD. In Windows, go to the 'acro' folder on the CD and run the ar500enu.exe self-extracting archive, which will extract the reader and start an installation wizard to guide you through installation. Should you wish to try extracting text from these PDF files, a short text file called copytext.txt is included in the 'acro' folder to avoid you having to wade through the Adobe Acrobat Reader's help files to find out how it's done!

The majority of files are in Quill DOC, Word DOC, Plain text or PDF format text files. In many cases, I've duplicated the files in various formats to make life easier. Where possible, the files are duplicated in a QXL.WIN for emulator users and in Windows folders outside the QXL.WIN. Most of the material is also included archived in a "zips" folder for those unable to access the QXL.WIN

Before I list a summary of what's on the CD, may I state that this CD is itself freeware. The whole idea was to make the collection of documentation available in one set. Please feel free to pass a copy of this CD on to all interested QLers!

Programming Information for 680x0 Systems

68000 ASSEMBLER INFORMATION
A large and comprehensive plain text file describing assembler programming for the 68000 instruction set.

68040 USER MANUAL
A substantial Motorola document describing how the 68040 works. This is not the Programmers Reference manual (see below). This is in Adobe PDF file format.

680x0 PROGRAMMERS REFERENCE MANUAL
Motorola M68000 family programmer's reference manual, including CPU32 instructions. Supplied as Adobe PDF files.

ASCII CODES
QL ASCII code list from Don Taylor.

AURORA MANUAL
The Aurora manual in plain text, Quill DOC, Adobe PDF and Word DOC file formats, plus the Aurora technical details (registers, screens, detecting Aurora, extended ROM details etc) from Aurora designer Zeljko Nastasic.

BUTTON FRAME
Example program listing from Jochen Merz showing how to use and free a button in QPAC2's Button Frame for BASIC.

C TUTORIAL
A tutorial for those wishing to learn C (e.g. C68 on the QL)

CFGC68
Jonathan Hudson's attempts to provide a configuration block system for C68.

CLOCKING IN ARTICLES
A series of articles from QL Today dealing with anything from the QL clock to Star Trek stardates and printing your own calendars! Includes a discussion of the Zeller's Congruence dates formula. Now updated to include part 4 from QL Today Vol 8 Issue 3 (including the revised calendar listing).

COMPUTER GLOSSARY ARTICLE
An article from QL Today magazine, explaining some common computing terms with emphasis on the QL side of things!

LEVEL 1 CONFIGURATION BLOCKS
The original 'level 1' QJump configuration block data format.

LEVEL 2 CONFIGURATION BLOCKS
The more recent configuration block information, from Jochen Merz Software. Includes a list of Level 2 Config IDs registered so far.

DEV DEVICE INFORMATION
The DEV device is a device name substitution system to help with getting older QL software which do not understand long filenames to run from hard disk systems, for example. The DEV device is built into many modern QL systems such as most Miracle Systems disk interfaces, SMSQ/E and also as a file called DEV_REXT which may be added to some systems as resident extensions. This file contains an article about using DEV.

DIREN KEYBOARD INTERFACE
This is a scanned manual for a Diren keyboard interface, along with 5 diagrams from the instruction sheet. The QL graphics are in PIC and SCR formats, while the original PC scanned graphics are in PCX format.

DISCOVER DISC FORMAT REFERENCE
Dave Walker's documentation on the disc formats supported by his Discover and Multi-Discover programs. Includes his notes on the QL floppy disk format.

Disk Interfaces

Replacement manuals for older QL disk interfaces. Manuals for the Miracle Systems units may be found elsewhere in the 'miracle' directory.

CST QDisk. There are three versions of the manual, for version 1, 2 and 3 interfaces. In the filenames below, X=1, 2 or 3 as appropriate.

Cumana Disk Interface manual

Generic disk interface manual. A general purpose manual for most older QL disk interfaces. Obviously, if the manual for your interface is listed here, use that particular manual, otherwise refer to this generic one. Due to the inclusion of pictures, it is best to use the Word DOC or the PDF file version.

Falkenberg hard disk interface manual.

Sandy Superdisk and **SuperQBoard** interfaces

TRL128 - The Technology Research Ltd Delta 128 disk interface with 128K RAM

DISPLAY CODE
An article and assembler source showing how to handle high resolution displays by reading the necessary information from the operating system legally. Provides a set of extensions for SuperBASIC or SBASIC (works in QDOS or SMSQ/E) giving S*BASIC and compiled BASIC programmers access to legal methods of reading screen sizes etc across all QL-type platforms. To install the extensions in SBASIC or SuperBASIC (S*BASIC is an accepted way of meaning both!) simply LRESPR the DISPLAY_cde file. Now supplied as version 2 with additional extensions for GD2 detection, Window Manager versions etc.

DO
Al Boehm's article about using the DO command to process files of S*BASIC commands as though they were batch files.

EASYBASE FILE FORMAT
The file structure information for the EasyBase database system for the QL.

EASYPTR TUTORIAL FROM NORMAN DUNBAR
Easyptr is a programming utility from Albin Hessler Software, to assist with the easier production of pointer driven software for the QL. Norman Dunbar didn't find the going so 'Easy' when he first used EasyPtr, so he set about producing this tutorial for the package. EasyPtr is available from Q-Branch and Jochen Merz Software.

EASYPTR 4 ARTICLES
First, there was the colour drivers. Next came the new Window Manager (WM2) to make better use of the colour drivers. Then Easyptr was updated to version 4 to actually allow us mere mortals to write programs to best make use of the new facilities programmed into the operating system by people like Marcel Kilgus. Now that Easyptr 4 is available from QBranch and JMS I thought I'd better write some articles about actually using the new system. These are a short series of articles from QL Today Volume 9 and Volume 10 offering a gentle introduction to writing programs using the new facilities, and a review article about a wonderful little extra utility called QCoCo (a program written by Wolfgang Uhlig) which makes designing colour schemes for the System Palette that much easier. Some of the diagrams from the articles (e.g. screen dumps) are in .GIF format.
The files in the col_ folder are an introduction to use of the new colours etc.
The files in the qcoco_ folder are those for the QCoCo software review.
The files in the scale_ folder are those for the article showing how to use scalable menus from Easyptr v4.

ERROR HANDLING
A discussion of error trapping from S*BASIC, including valuable information on the largely undocumented WHEN ERROR structure and equivalents in Turbo and QLiberator programs.

EXPANDING YOUR QL
Two part article about expanding your QL system. Looks at hardware, software and operating systems available.

EXTRAS
Alex Wells and Francois van Emelen between them have produced a list of some 3,100 BASIC extension names found in various QL toolkits. This should serve as a useful reference especially for those writing such toolkits, in order to avoid name clashes. The file comes in various text forms and a .dbs format database file for DBAS users on the QL.

FILE HEADER FORMAT
Short file showing the format of the 64 byte file headers used in the QL filing system.

FILENAME EXTENSIONS
A QL Today article listing filename extensions in common use, so you can tell from the _xyz filename ending what type of file it is.

FOXPRO DBF TO QL DBS FILE CONVERSION
Information on file structures of Foxpro files plus a BASIC program to do the conversion, from Francois van Emelem. First published in QL Today. QL DBS files are database files for D. Howells's DBAS database utility, available from Quanta library, Thierry Godefroy's website and most other sources of free QL software.

USING FLOATING POINT UNITS FROM QDOS/SMSQ
A suite of files from George Gwilt showing how to access FPUs from QDOS and SMSQ systems. This is version 1.20 of the FPSave software and documentation.

GD2 GRAPHICS AND GRADUATED FILLS
An article from QL Today, an introduction to use of the new colours available to SMSQ/E based systems with "colour drivers" or GD2. Also includes some notes on producing graduated blocks of colour.

GD2 GRAPHICS CONVERSION
Articles from QL Today volume 8 issue 3. The first is a listing by Malcolm Lear to assist with conversion of 24 bit BMP graphics files from Windows to QL graphics, while the second deals with converting QL GD2 screens (16-bit and 256 colour 8 bit graphics) to Windows .BMP file format.

GOING ONLINE
A nine part series by Bill Cable about using your QL to go online to a Bulletin Board.

GRAPHICS FORMATS

A file describing the format of several types of QL graphics files, including screens, area save bitmaps (PIC), Eye-Q, Page Designer and Professional Publisher files. Plus a couple of QL-specific graphics compression formats.

A short file with a description from PROGS of the Line Design page file format.
A set of text files describing common non-QL graphics format, included here for any QL programmer wishing to write graphical code to handle non-QL graphics files. The files cover: Windows BMP files. GIF Graphics Interchange Format files (plus GIF89a). IFF Interchange Format Files. JPEG Joint Photographic Experts Group files. PCX ZSoft Paintbrush files. PNG Portable Network Graphics. Various Atari ST graphics files and TIFF Tagged Image File Format files.

HOTKEYS ARTICLES

A series of 3 articles from QL Today about using the Hotkey System from the pointer environment. A nice gentle introduction to this rather difficult subject for newcomers.
HKEYS is an article listing all the Hotkey System II commands in SuperBASIC and goes on to describe using the extended Hotkey definitions to drive QPAC2 menus via the option commands etc. A useful reference document.

HTML SPECIFICATION DOCUMENTS

Documents from W3C, the World Wide Web Consortium, included here in the hope that one day the QL will have a good HTML browser or viewer. Once that day arrives, we can use HTML to provide manuals and help files on disk for example. If copying these files from this CD, please note that the HTML 4 documents directory contains a number of sub-directories.
HTML 2.0 specification
HTML 3.2 specification
HTML 4.01 specification documents and related files
XHTML 1.0 The Extensible Hyper Text Markup Language

HTML TUTORIAL

Norman Dunbar's tutorial to help you learn HTML - useful for creating those QL-related websites!

INTERFACES GUIDE

Article from IQLR magazine by the late Dennis Briggs listing most of the early QL disk interfaces and other cards, complete with simple diagrams to aid identification. The diagrams are PIC files to go with the QL version of the document, or .PCX files to go with the Windows version.

INTERNET ARTICLE

An article by Phoebus R Dokos explaining how to connect to the internet using a QL emulator supporting TCP/IP connection facilities and programs like QL Lynx, QL FTP and the QL email applications.

IPC8049 DISASSEMBLY

The disassembled source code for the 8049 second processor in the QL.

JOYSTICKS ON QL

How to connect a switched joystick such as an Atari switched joystick to the QL CTL ports.

JMROM DISASSEMBLY

A disassembly and notes on the QL's version JM ROM.

JSROM DISASSEMBLY

A disassembly of the QL's version JS ROM.

KEITH MITCHELL'S HARDWARE DOCUMENTS

A series of ASCII files drawn up by Keith as he has serviced some QL add-ons over the years. All should be viewable on an 80 column screen, as they are basically plain text files.

MACHINE CODE TUTORIAL

68000 machine code tutor. These ASCII files are intended to help experienced machine coders from other processors come across to 68000.

MATHS STACK PROGRAMMING ARTICLE

An article by Norman Dunbar about the use of the Maths Stack on the QL.

METADRIVERS

Lengthy article from Nasta (Zeljko Nastasic) on meta drivers for the QL.

MINERVA 1.98

Laurence Reeves has kindly made available the sources and ROM image for version 1.98 of the Minerva ROM, a replacement ROM for the QL. There is a huge number of files, mostly assembler source files, so I have not attempted to duplicate this directory outside the qxl.win (a) in case of making mistakes in a complex set of files, and (b) the files are almost all for QL editors and assemblers. For those unable to access the qxl.win, the files are all contained in three zipped files in the ZIPS folder. See the README_TXT file in the MINERVA folder for details of what the files are.

MIRACLE SYSTEMS MANUALS

A set of replacement manuals for Miracle Systems Ltd QL add-ons. All in plain text format.

QUANTA

Independent QL Users Group

World-wide Membership is by subscription only
offering the following benefits:
Bimonthly Newsletter – up to 40 pages
Massive Software Library – All Free !
Free Helpline and Workshops
Regional Sub-Groups. One near you?
Advice on Software and Hardware problems
Subscription just £14 for UK members
Overseas subscription £17

Barclaycard: Visa: Access: MasterCard: Accepted

Now in our Twenty Second Year

Further details from the Membership Secretary

John Gilpin, 181, Urmston Lane
Stretford, Manchester, M32 9EH (UK).
Tel. +44 (0) 161 865 2872
or
Visit the Quanta Web Site
http://www.quanta.org.uk
E-mail: membership@quanta.org.uk

Let's CELEBRATE QL is 21

WORKSHOP & BIRTHDAY DINNER PARTY
at IBIS Hotel, Portsmouth, Hants.
Workshop including Demonstrations, Talks and Traders etc.
Non-QLer's Programme visiting Places of Interest
Saturday & Sunday October 29th & 30th 2005
Full information from Quanta Secretary

BOOK NOW!

Information on http://members.lycos.co.uk/geoffwicks/qls21.htm

Scanned with much appreciated assistance from Dave Westbury.
Gold Card manual
QXL Card manual
Super Gold Card manual
Trump Card manual
Miracle Hard Disk System manual
Miracle Disk Adaptor guide
Centronics Printer interface
ED Disk Drives Manual
Super Gold Card printer cable adaptor

Modems

9600 BAUD MODEM INFORMATION - General information about 9600 baud modems.

COMWORDS - A communications and modems glossary - many terms explained.

Monitors

Replacement manual for Sinclair Vision-QL and Microvitec Cub QL monitors.

MUSIC
An article from QL Today and a short basic program to help with the setting of musical note values for musical use of the BEEP command. Contains BEEP parameter values for given notes, and a short program to display frequencies of given notes in Hertz.

NETWORK
An article about the QL network. The standard QL, Aurora and QXL all have a simple to connect two wire network built in, able to connect up to 64 QLs together as a simple local area network.

PIC FILES
Short article showing how to handle pointer environment area save files, also known as PIC files. Normally you would use facilities provided by pointer environment to handle such files, but if you really must write your own code to load/save these files this article should at least provide you with sufficient information to get you started.

Pointer Environment

If you have never used QL pointer environment before, this is a good introductory article from David Denham. Originally published in QL Today magazine under the title of "It's Not Rude To Point", this package includes the article itself plus a copy of the version of pointer environment files referred to in the article.

POINTER ENVIRONMENT IDIOT'S GUIDE
A really good introduction to the Pointer Environment on the QL and compatibles. Starts from first principles and gently helps you to get going. Use the Viewer program supplied to view the pictures via links built into the text file.

POINTER ENVIRONMENT IDIOT'S GUIDE (HTML VERSION, CONVERTED BY TIM SWENSON)
A version of the above Pointer Environment Idiot's Guide converted to HTML by Tim Swenson. View with your favourite browser!

Printer Programming Information

EPSON ESC-P2 DOCUMENTATION
A substantial set of documents describing the Epson ESC/P2 printer control code set. Presently, only in PDF format - any volunteers to convert these into QL readable format? It may of course be possible to print these using Jonathan Hudson's QDOS Ghostscript port, otherwise you'll have to resort to using Adobe's Acrobat (PDF) Reader.
A cut down version (text only) of the ESC/P2 guide is available as Quill or Word DOC files - this is merely a list of control codes and notes on each command.

HP PCL3 DOCUMENTATION
A file listing the control code sets for the HP Deskjet 600 and compatible printers. Although intended for the Deskjet 600 printer, most of the Deskjet and some LaserJet ranges from Hewlett-Packard will handle the information in this document.

PSION PRINTER_DAT FILE FORMAT
Explains the format of the printer_dat files used with the Psion QL suite (Quill etc).

PSION PROGRAMS FILE FORMAT
Notes on Abacus file structures, from Christopher Cave

Notes from Psion regarding format of Quill and Abacus Transfer files, the format used to move files from these programs between the different versions of these programs on different target machines without the loss of data that might occur if export files were used for example. The ABATRA files refer to Abacus, while QUILTR files refer to Quill.

TEXTIDY NOTES
Textidy_ref is a set of notes from Dave Walker

concerning the format of the Psion applications' files.

PTR KEYS
Keys for pointer device, from SMSQ/E sources. Format of device driver definition block - an assembler file.

Q40 and Q60 Material

The Q40/Q60 mainboard user manual, Q40/Q60 hardware documentation and the Q40/Q60 sbasic part of the SMSQ/E manual. This is only the Q40/Q60 specific part of the SMSQ/E manual, you'll need a legitimate general SMSQ/E manual to complement this.

Q40 CD
A short article showing how to read CD-ROMs on a Q40 using the Atapi-CD drivers and the QCDEZE software.

QDOS HINTS
Selection of hints and manual updates on a variety of QL-related subjects

QDOS INTERNALS
A selection of information files from Norman Dunbar's web site, all sorts fo information about QDOS!

QDOS LOW LEVEL INFORMATION
A document made up from a variety of smaller documents. Plenty of information about anything from QL error codes to memory map and QDOS Traps lists.

QIMI INTERFACE INFORMATION
The QIMI (QL Internal Mouse Interface) has long been the 'standard' QL mouse system and most other systems are based on this in some form or other. The document lists some technical and programming information, while the PIC file contains the QIMI interface circuit diagram. Thanks to Dave Westbury for these files.

QL CSYNC INVERSION
An article from Marcel Flipse which shows how to make a little circuit board which inverts the Csync pin video signal. This allows the QL to be connected to CGA monitors which expect an active-high signal (QL Csync pin normally gives out an active-low signal). Note that this article is in Adobe PDF file format only.
Another article on the same subject from Bob Gilder, on how to use an IBM CGA monitor with a QL.

QL HACKERS JOURNAL
Back issues of all published issues of the QL Hackers Journal, an e-zine by Timothy Swenson aimed at programmers and advanced users of the QL. A real treasure trove of useful information. 34 issues at the time of writing, all in the QHJ directory.

QL Manual

A version of the QL User Guide scanned as plain text files, with the diagrams made into QL mode 4 PIC files.
1. Introduction section of QL User Guide
2. Concepts section of QL User Guide
3. Keywords section of QL User Guide
4. Programming guide section of QL User Guide

There is also a PDF document format QL manual, which came from the World Of Spectrum website.

QL SERVICE LIST
Robert Klein's QL Service List and QL FAQ files. Both the original .TXT files and versions converted to QL _TXT files are here, since rklein.htm contains links to the original .txt files. These files are a useful reference, but do contain SOME slightly out of date material by now.

QL Service Manual

The Sinclair QL Service Manual, a definitive guide to the QL hardware and servicing. Supplied in both Windows DOC (with PCX graphics) and PDF formats, along with QL version in Quill DOC and Plain Text with PIC file diagrams.

QL TODAY Index

A set of plain text files by myself and Brian Kemmett, which make up an index to volumes 1 to 9 of QL Today magazine.

QL WORLD/QL USER MAGAZINE INDEX
A plain text file index to these two best known of early QL magazines, by Chris Adams.

QMENU PROGRAMMING FROM BASIC ARTICLE
An article from QL Today about using the Jochen Merz Menu Extension (Q-Menu) from SuperBASIC or SBASIC.

QPAC2 GUIDE
The Q-Branch QPAC2 supplement - a beginners document showing how to start using QPAC2, some hotkey commands and writing your own boot files. In Quill DOC, plain text and Text 87 formats.

QPAC2 GERMAN THINGS LIST
A list of the Thing names in the German version of QPAC2.

QPC KEYWORDS GUIDE
Martin Head has produced a document similar to the QL Manual's keywords guide, but including the QPC-specific keywords too! Includes Concepts section.

QPLANE
The instruction sheet for the QPlane powered backplane for the QL. QPlane was designed by Zeljko Nastasic and sold by QUBBESoft P/D.

QUANTA INDEX
An index to Quanta newsletter from issue 1 up to 1991, by Chris Adams.

QUBIDE
Some technical notes and utilities for the Qubide QL IDE interface, and the Qubide ROM version 2 upgrade leaflet and notes on use of the Trashcan.

QXL.WIN DOCUMENTATION
The QXL.WIN is the 'container' filing system for the QXL card and some QL emulators, which store QL files inside a large file called QXL.WIN on the native drive of the host computer. These documents (originally from the Austrian QL group) describe the format of QXL.WIN files.

RAMDISKS ARTICLE
An article about using RAMdisks on QL systems.

RECURSION ARTICLE
Reproduced from QL Today, this article deals with that difficult programming subject, recursion. It gives several practical and useful example listings in SuperBASIC which are included both in the article and as separate listings.

Reviews

A few reviews of some significant software for the QL. Most of these are from Timothy Swenson.

SCALE COMMAND
A short article from QL Today about the SCALE command and how to calculate what horizontal scale corresponds to the vertical specified in the command for given window sizes.

SCART VIDEO CONNECTION
An article from QL Today by Richard Cooke showing how to connect QL video to a Scart input TV. Details for both RGB and composite video. Shows how to attach suitable value resistors in line with the colour signals to ensure correct voltages etc. along with the calculations involved.

SDUMP SCREEN DUMP DEVICE
Many QL disk interfaces have a built in screen dump device called SDUMP and a file called SDUMP_rext is also available to provide these facilities on other QL-type systems. This article shows you how to use SDUMP. There is further information in the Trump Card manual elsewhere on this CD.

SER 8056 PRINTER MANUAL
A scanned manual for the Ser8056 serial compact printer, a thermal printer popular in the early days of the QL and which is still found as a second hand printer at QL shows etc, often without manuals. This manual has graphics mode documentation added, kindly supplied by Robert Newson. Note that the manual includes about 17 line diagrams. These are embedded into the Word DOC and PDF files, whereas they are supplied as separate PIC files with the QL DOC and TXT files. I've also supplied them as loose GIF files with the PC files.

SERIAL PORTS CONNECTIONS ARTICLE
1. Serial ports are a very useful means of interconnection between computers, but wiring cables for them can be a tricky experience! This article written with advice from Tony Firshman shows how to connect up the various types of serial ports you are likely to encounter. It may be useful if you wish to try to make up suitable cables for use with the Sernet serial networking software for example. Article reproduced from QL Today magazine.
2. An article from my website about making cables for file transfer and serial connections between QLs and PCs. Covers making cables for QL connectors and PC serial ports which use 9-pin D and 25-pin D connectors. The diagrams are all in .GIF format. There is also an HTML version of the article on the PC side of the CD.

SERNET

Sernet is a serial networking system for the QL, derived from a previous MIDI connected system called Midinet. Using Sernet, QLs may be connected to other computers via the serial ports in the same sort of way as the QL network ports are used to connect two or more QLs together. Note that split input/output serial port drivers (STX and

SRX devices) are required by Sernet. These are provided by the SMSQ/E operating system, or by the SimSer device drivers for QDOS from H. P Recktenwald.

SERNET ARTICLE
An article about Sernet from QL Today.

SERNET ON Q40 ARTICLE
Derek Stewart's QL Today article about linking Q40s with Sernet.

SERNET MANUAL
The Sernet manual, all 3 pages of it, is included:

SMSQ/E Information

GD2 AND SMSQ/E V2.98 INFORMATION
Tony Tebby's documents in M$ Word and HTML formats (large files). Documentationon the Graphics Device 2 driver (GD2 or "colour drivers") and the changes in SMSQ/E and SBASIC from v2.98 to handle the new facilities. Note: the _doc files are for Word and will not load into Quill.

SMSQ/E MODULES ARTICLE
Articles about adding modules to SMSQ/E and about Language Dependent Modules.

SMSQ HISTORY
An article about the development of SMSQ and some of the problems the author faced during the development. A really interesting read!

SMSQ/E V3

Articles about the newly released version 3 of SMSQ/E. Article by Phoebus Dokos about use of SMSQ/E v3.00 with Super Gold Card/Qubide.
A short series of articles from QL Today by Wolfgang Lenerz featuring the new Window Manager 2 facilities in SMSQ/E v3.00 including details of new assembler calls and basic extensions.
Second part of above article - available in Quill DOC, plain text and RTF file formats.

SORTING ROUTINES
Sorting routines in SuperBASIC published in QL Today and a Radix (or binary tree) sort routine from Stephen Poole, also published in QL Today.

SPRITES
Articles about the new sprites in GD2 system. Addititonal information may be found in the SMSQ/E 2.98 and 3.00 documentation.

STELLA
Extensive notes in HTML format (with .GIF illustrations) on Stella concepts. Stella is the Tony Tebby real-time operating system.

SUPERBASIC SOURCE BOOK
Tim Swenson's guide to QLiberator and other S*BASIC programming utilities.

SYSTEM PALETTE - USING THE NEW WMAN COLOURS FROM SBASIC
An article from QL Today Vol. 9 Issue 3 about using the new Window Manager 2 extensions from SBASIC.

SYSTEM VARIABLES LIST
A list of QDOS system variables, plus some additional SMSQ ones plus a few undocumented ones. This list also documents the more recent ones which specify hardware details in this machine such as processor type, computer type and display type, which may not appear in earlier system variables documentation, plus a few SMSQ specific system variables.

TF Services Manuals

Tony Firshman has kindly let me have copies of the manuals for his hardware products for inclusion on this CD. A bit of a variety of file formats, including plain text, Quill DOC and Adobe PDF files. Useful as replacement manuals for these products if you've lost a manual or bought second-user hardware without a manual.

HERMES
The manual for TF Services's replacement chip for the QL's original 8049 IPC chip.

I2C INTERFACES
The manual for the I2C interfaces to go with Minerva Mk II's I2C bus system.

MPLANE
Instruction sheet for the MPlane miniature back plane.

ROMDISQ
Instruction manual for the RomDisq flash memory card for the QL.

SUPERHERMES
SuperHermes manual.

SUPERHERMES LITE
SuperHermes Lite manual.

US KEYBOARD
US keyboard tables files for SuperHermes.

TEXT QL
A rather cute little text character diagram of a QL which I downloaded from a website somewhere (can't remember who designed this). Useful for adding a QL illustration to text-only documents for example. Just merge this into the document!

THINGS
Few subjects in the QL world have caused as much head-scratching as Things. A Thing is a general purpose resource for QDOS or SMSQ, but things are so general that it is impossible to give them specific names, hence "Thing." The rather general nature of Things makes it just as hard to explain them as to invent a meaningful name, but hopefully after reading these files you'll be a little bit wiser.

THINGS ARTICLES
A series of articles from QL Today by Jochen Merz about "things."

THING INFO PROGRAM
THING INFORMATION FILES

THOR MANUAL
The technical manual for the CST Thor, scanned and presented as a PDF file. It appears to have been scanned as graphics, so I cannot offer a text version.

TOOLKIT 2
This CD includes some manuals and articles about Toolkit 2. Now that it has been made freely distributable, I thought it appropriate to include a copy of Toolkit 2 for those whose systems do not include the almost mandatory copy of Toolkit 2. Both the standard TK2 ROM image and the disk-based reconfigurable version are included. Use whichever version is best suited to your requirements - some QL emulators such as QLay and QemuLator can load the ROM image directly. For Toolkit 2 manuals, see below.

1. Disk Based Reconfigurable Toolkit 2 v2.06b
2. Toolkit 2 v2.12 ROM image N.B.

As this is a ROM image, it should not be LRESPRed in the usual way, rather you should use a ROM initialisation call:

```
base=RESPR(16384)
LBYTES FLP1_TK2_EXT,base
CALL base+PEEK_W(base+6)
```

TOOLKIT 2 and RECONFIGURABLE TOOLKIT 2 MANUALS
A full manual for Toolkit 2, used with kind permission of Tony Tebby. Also includes the supplement for the reconfigurable disk/microdrive based version of Toolkit 2. A very useful file for those with no Toolkit 2 manuals, who may have purchased disk second-hand disk interfaces including Toolkit 2 on board for example.

TOOLKIT 2 TUTORIAL
A Toolkit 2 tutorial article originally published in QReview magazine.

TRA
Information from QL World and an extract from the SMSQ/E manual explaining use of the TRA keyword for character translation and message tables.

UK SERIAL PORTS
H.P.Recktenwald's article about the UK QL serial ports.

WARES
An article about the various types of "free" software you may encounter (freeware, shareware, charityware etc) and some information on how you may need to unpack archives depending on how the software is supplied.

What Type of Machine?
Two packages showing how you can read system information to determine what type of QL system your software is running on.

WHICH MACHINE AM I RUNNING ON? ARTICLE (QL TODAY)
More recent versions of our favourite operating systems have been ported to run on various processors and platforms. This article from QL Today documents system variables and language extensions which will help software to identify which platform it's running on, e.g. so it can check for certain hardware facilities and take advantage of them. The article has been slightly amended from the one published in QL Today (QLay hardware code details)

WHAT HARDWARE
In a separate directory, a package by J.D. Mitchell to emulate these functions using standard SuperBASIC or SBASIC, capable of running on all platforms.

WHEN VARIABLE
An article about the little used WHEN VARIABLE or WHEN CONDITION structure present in some versions of the QL ROM.

WORD FILE VIEWER
There are a number of documents on this CD in Microsoft Word format. Not everyone has a copy of Word, but there is a freeware viewer for these files from Microsoft. This directory contains the Word File Viewer for Windows 95/98/NT. The program is supplied in a folder called WORDVIEW,the self-extracting archive has the filename wd97vwr32.exe and instructions are in a set of files called WordView.txt,.rtf and .doc files. Note: at the risk of stating the obvious, this is a WINDOWS program, and NOT a QL program. There is a program called catdoc for the QL (ported from a Unix program of the same name) which is available from Jonathan Hudson's website, at www.daria.co.uk

ZIP AND UNZIP
A short article explaining how to use the most common features of Zip and Unzip from the command line.

ZIPPED COPIES OF ABOVE FILES
The zips-› directory contains copies of most of the above files in zipped format, in case you'd like to distribute these via email or websites in compressed format, or if you simply wish to move the files to or from other computer media (e.g. PC floppy disks) to a QL. There is a copy of the ZIPS directory both inside the QXL.WIN system. You will need a copy of UNZIP to decompress these. Programs like Winzip for Windows will do the job, as will the QDOS Unzip from Jonathan Hudson. This is a QDOSport of the official Infozip system, and the latest version may be downloaded via Jonathan's website on
www.daria.co.uk

A copy of QDOS Unzip and Zip may be found on this CD in their own folders, and archived copies within the 'zips' folder.

[Jochen writes] Thanks Dilwyn for collecting all this useful information. I had to reply to Stephen Poole from a long chat at Eindhoven, and this article here is actually a reply. The documentation CD contains all about display types and resolutions (we cured a bug regarding SCR_BASE at Eindhoven in one of Stephen's programs). I would also recommend this CD to all owners of QPC Print, as the EPSON documentation explains the large set of control codes in detail.

More on the next two pages in the Eindhoven show review...

JUST WORDS!

FREE NIGHTIES!

Four years ago Just Words! published its rhyming dictionary using the slogan "Flighty Aphrodite in a mighty nightie". Since then the program has been used by a small, but enthusiastic, group of buyers for writing everything from rock lyrics to anti-abortion songs. After four years of use the nightie has become a little bit worn and threadbare, so we have given Aphrodite a brand new nightie in GD2 colours. To claim your free new nightie, just produce your master disk.

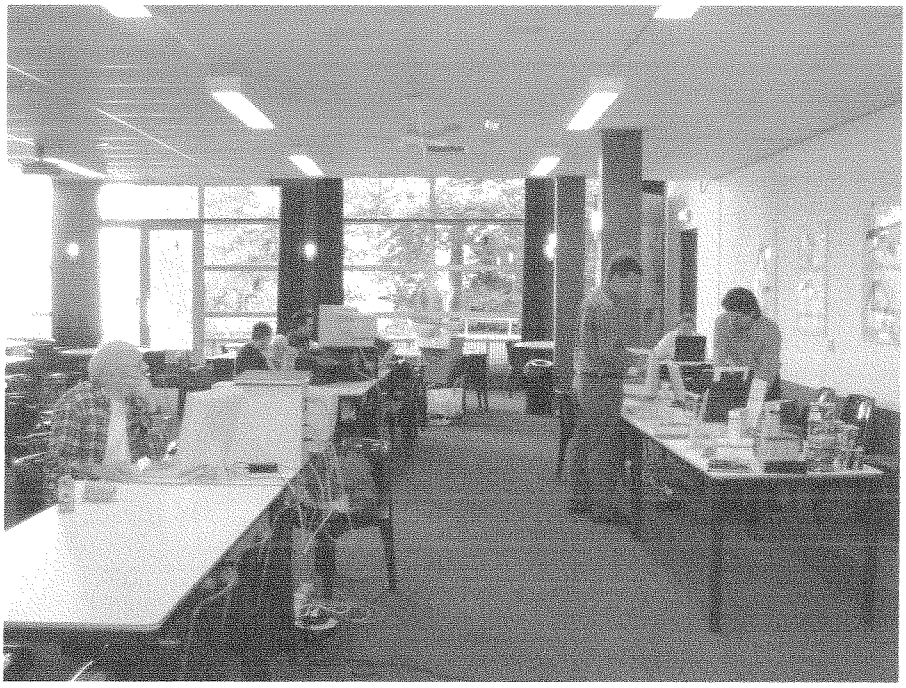
Also available is the GD2 version of Auto-Graph, which completes the upgrading of the Just Words! program range in the new colours. Our freeware range upgrades can be downloaded from our website and our commercial range will be upgraded free on charge on production of your master disk.

JUST WORDS! CONGRATULATES QL-TODAY ON ITS 10TH PUBLISHING YEAR.

Geoff Wicks, 56 Peveril Crescent, West Hallam, Derbyshire DE7 6ND, U.K.
Tel: +44 (0)115 - 930 3713 *email: gwicks@beeb.net*
Web: http://members.lycos.co.uk/geoffwicks/justwords.htm

The last Eindhoven Show this Year

by Jochen Merz



Like every year, there is an early, a middle and a late Eindhoven show. Last year's late show was QL 2004. This time, it was "just" a local show. As I tend to go to every Eindhoven meeting, if only to meet people I have not seen and spoken to for a while, I was there, of course. I was unusually late, this time, but only about an hour. Network problems in the morning at home forced me to update the laptop via WLAN, which took much longer than planned. Being already late, we discovered after we left the motorway, that half of the centre of Eindhoven was blocked and being re-built ... and so was Floralaan, the road to St.-Joris-College. But we got there... and believe it or not, my usual space was already taken. Well, visitors still managed to locate the J-M-S Desk in the room :-)

The usual guests from Holland were already there, but so was Stephen Poole from France. During the day, more visitors from Belgium, Germany and France arrived - so it was quite an international show again! You were missed, Wolfgang!

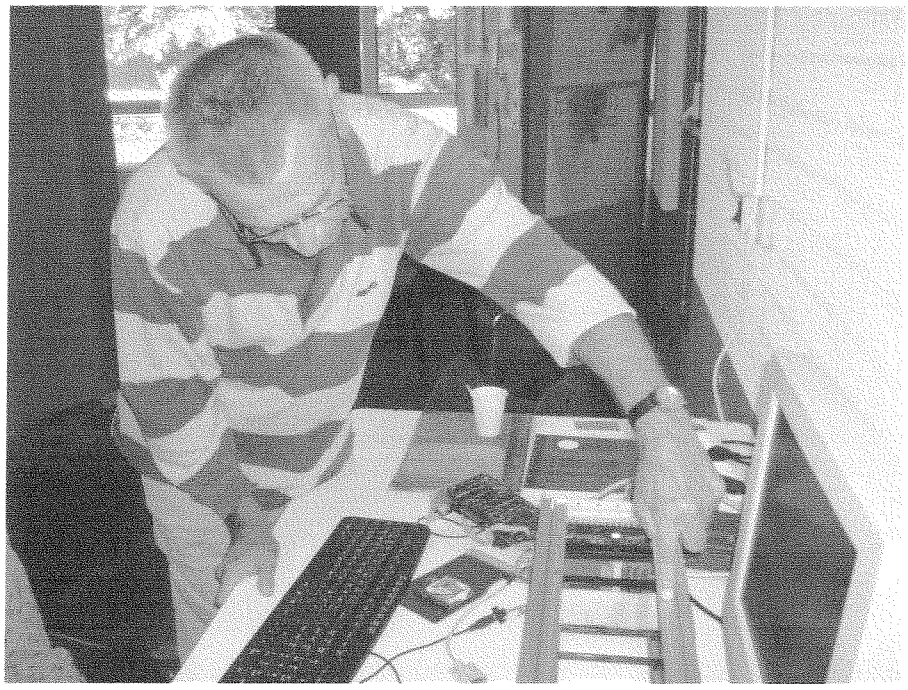
Some of the visitors also missed Marcel and the other dealers, but they had been present on the QL Afterglow show at Eindhoven in the middle of this year, and they have to travel quite some distance to get there, unlike me.

But we used the time for chatting, discussions and so on. Stephen Poole discovered that changing the screen-base in his programs from 131072 to SCR_BASE makes his programs work not only on a real QL, but also on QPC2. At the moment, his program also assumes a screen size of 32k ... but that is not true anymore for higher resolutions, so you better use

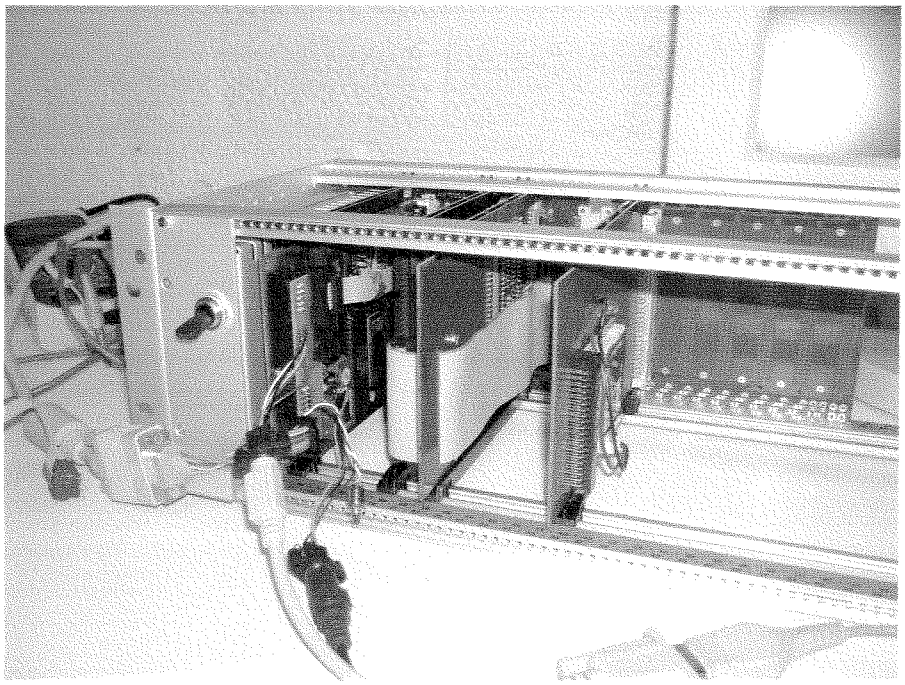
```
SCR_YLIM*SCR_LLEN
```

to work out the screen size in order to make it work on all systems.

Well, Stephen was pleased to see it working ("that was the advantage of the GC over QPC", he said at the start of our talk - but now I am sure he will love the enormous speed and the other advantages.)



Jens Wildgruber demonstrated a QL in a small rack. No moving or rotating parts, no floppy disks, no harddisks, no cooling ... but 1.25 GB of storage!
He made the boards himself to connect the QL to Compact Flash cards, which are his main memory.
Jens also added a bus system for his nautic navigation system, which he connects to SuperHermes. Have a look at the pictures, great! And the whole computer consumes under 1A of power. Another nice show - hope to see you next year again!



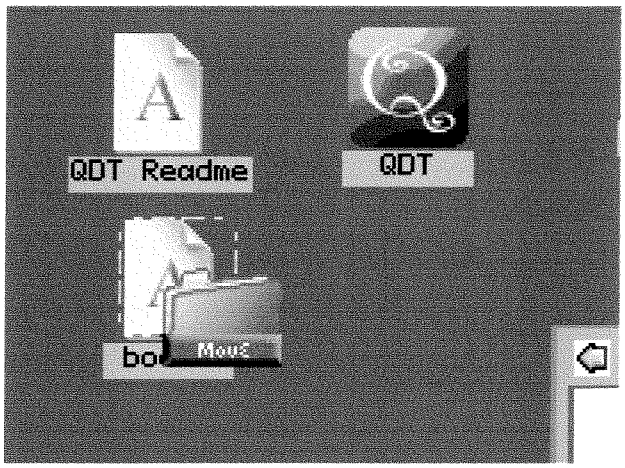
QDT - Last Minute News

by Jim Hunkins

New Release to Showing at 'QL is 21' Show

The next release of QDT will feature:
- the first offering of Drag & Drop capabilities
- updates to the Icon Draw program

Drag & Drop will allow copying or moving objects between the desktop and/or any open folders. Functionality has been added to support the future Run operation when the File Manager is completed. This will allow a user to drag a file from a File Manager window and drop it onto an executable object, which will then be launched and try to open the file that was dropped onto it (if the program supports command line file loading).
The included image illustrates the use of the moved/copied icon itself during the move, including a label superimposed on the bottom of the icon based cursor to remind the user of the operation being done. An outline is generated live around any object that the object is positioned over and which can be dropped onto. Objects that are not eligible for dropping or not positioned under the cursor will not have the outline.
The Icon Draw program has been updated to add a color picker that allows the user to pick any color already in the icon directly into the left or right mouse button colors. Also, the actual size live update of the icon redraws very quickly now thanks to the use of Marcel Kilgus' fantastic sprite drawing routines. If this window is hit, then its window changes colors to show how a design will look on different backgrounds.
For the following release, now that active development is moving forward, the integrated File Manager object will be presented. It will look basically like a QDT folder but will have live files from a drive represented in it, allowing for all the standard file management functions. Of course it will be fully integrated into QDT. This will include the Drag & Drop run function previously mentioned and likely a multiple selection drag and drop capability.



Byts of Wood

by Roy Wood

Technology has a way of creeping forward rather relentlessly. You may be perfectly happy with the kit that you are using but you can be sure that, six months after you have peeled the wrapping from a shiny new toy there will be a faster, smaller, neater one with more memory and functions to die for sitting in a shop near you with designs upon your credit card.

As such, therefore, it is always a tad surprising that vintage computer systems like the QL managed to cling on and survive. The pace of development in these niche markets is always slower that in the fast lane of the high street but developments do happen and solutions do appear. In some ways the people who inhabit these technology cliques get more left behind that their counterparts in the mainstream.

Some years ago, before the fall of the Berlin Wall, I went over to the East sector of Germany touring with a rock band. The shops at the time (1984) were very much like the shops I remembered from the 1960s and I recall looking at items like cassette players with huge piano keys on them marked with their functions in words (some of these were in Russian - but it was still a word). By that time, in the west, we had already lost words on appliances and the word 'PLAY' had become '›'. This was a gradual process in which the symbol first appeared beneath the word and then, as the device, and the controls for it, got smaller there was no room for a written text and the symbol was all that remained. A few years after this the wall came down and, long before there was any infrastructure of social support, the wide eyed chain store proprietors marched across the land and started to acquire premises to fill with new toys. It must have been very hard for these people to suddenly have to work out what these new symbols did and how the technology worked.

You may wonder where this is going and why I am rambling on like this in a QL magazine. It was brought home to me last week when I had a visit from a new customer. He had a standard QL with a Trump Card and a set of drives. One of these was beginning to be unreliable so he wanted a replacement for it. He was not, as far as I know a member of Quanta and did not know about this magazine but found me by contacting (a very grumpy) Ron Dunnett ('I have retired') and then being put onto Tony Firshman who directed him to me. I replaced his drives with new ones and he also bought a Super Gold Card. When I tested the new setup I just put a floppy disk in the drive and typed 'DIR FLP1_'. He was astonished to see the file list come up on the screen and said he had never heard of this command.

Now this is not what I expected at all. I had always assumed that those users who still ran old QLs with minimum expansion and used the original QUILL, ARCHIVE, ABACUS and EASEL suite would be proficient in getting the best out of them. I even mentioned this in the last column. It seems not. All he had done was to put the disk in, BOOT up ABACUS, use the spreadsheet, save it on another disk, print it and then turn it off. How many others are there out there like this, I wonder? Can we do anything for them, or even reach them?

Diskussion

Of course he went away pleased with the new speed and extra memory of his new system. Next day I got a call from him in panic. He could not read any of his old disks. I wondered if his old FLP2_ drive had gone out of alignment before it died and if maybe we could only retrieve the data from it by using that drive. This does happen sometimes, especially of the get knocked sharply. Disk drives rely on the tracks being lined up. It will read the header from the disk, locate the files you request and then step across the disk retrieving the data. A drive that is out of alignment will write and read back from its own disks but will not read any disks written on a drive which is correctly aligned. It may fail to write to a disk that is formatted on another drive.

This, however, was not the problem. I should have remembered an incident at a Workshop in Eindhoven when someone was trying to demonstrate a program they had written to another user only to find that the other person could not read the disks. He was also using a Trump Card and a set of Drives and could read his own disks perfectly on that.

The problem here was the way that technology dealt with the jump from 720 sector DD disks to 1440 sector HD ones. When the first HD drives hit the market there were, of course, a lot of DD drives in evidence. It was essential that users of the new format could read data written on both

types of drive. Now the main difference between the formats was that the new one had double the capacity of its predecessor. Part of this was achieved at the media level. The new disks had finer particles and a better coating than the older ones but this just enabled the main advance which was to get the motor to step in smaller increments and write narrower sectors on the disk. There were other changes too, mainly in the power used to write to the disk but we won't go too deeply into that.

When the designers of the disks and drives looked at the problem of distinguishing between the two disk formats they realised that the solution was to add an extra hole to the HD disks and add a second sensor to the drive. This way the drive could tell physically if the disk in it was a HD or DD and set itself up to read and write in the correct way. The trouble was that the chip on the controller card had to know this too and, more to the point, had to be aware that there was such a thing as an HD disk.

This is where my customer's problem came in. Trump cards were around before the arrival of the HD disk format and so knew nothing about it. Even though he had a set of HD disk drives and was using HD disks they were being formatted and written as if they were DD. When I replaced the Trump Card with a Super Gold Card, which can recognise and control HD disks, then suddenly half his disks were unreadable. Luckily the solution to this is easy: All you have to do is to place a piece of black insulating tape over the second hole (not the write protect tab) and you will fool the drive into believing it is a DD disk and relief will ensue. I say to use black tape because, although most are just mechanical, some of these sensors are optical and masking tape can let enough light through to allow the sensor to trigger.

Another Diskussion

It seems to be the Season of the Disk (to misquote Donovan). Another customer ran into a different problem but one which we may see a lot of. This person is using an Aurora with a Super Gold Card and a Qubide and his hard drive rolled over and played dead. The problem we have these days is that the Qubide does not seem to recognise many drives any more. I have a few here, varying from 1Gb to 40Gb but all of these are not seen by the interface. the question is whether this is a problem with the code or the controller chip.

It would seem that the Qubide code can address larger disks because it is being supplied with the Qxx and that is using many different drives so I would suspect that the actual chip that does the interfacing is where the problem may lie but the question is what do we do about it? Is this an insurmountable problem with the Qubide or is there away to tackle it? Given my previous comments on the onward march of progress it may well be we will be swamped by demands for disk drives to service those users who have been happily relying on their systems for a few years now.

This is, of course, not the only problem here. The IDE Parallel ATA (PATA) standard that we have used for so long is being replaced by the new, faster, Serial ATA (SATA) drives. It is already the case that it is cheaper to buy some SATA drives than it is to buy similar sized PATA ones. At the moment the PATA interface is clinging on because there are no SATA Optical drives out there but it will only be a matter of time before these appear and then the fate of the PATA interface will be sealed. The SATA interface is very appealing to PC board designers because it takes up very little space on the board itself. It is also good because the cables are a lot smaller so the airflow within the case is much improved - good news when you consider how hot many of today's chips can get. Not so good news for those of use who cannot use the new drives at all.

Size Isn't Everything

It is quite astonishing to many QL Users that the smallest drive you can buy these days is 40Gb. For a QL that would be complete overkill but for a PC it is very small. For this reason disk drives continue to get bigger and bigger. The market is driven by its largest consumers. If we can get 40 and 80Gb drives working with the Qubide I cannot think what anyone would do with the space available. Even Tony Firshman's endlessly redundant backups would be hard put to it to fill the space.

One solution to the drive problem would be to use a laptop drive. There are still some quite small laptop drives available and there are quite a few adaptors to convert the large 3.5" drive interface to the smaller 2.5" ones. I have had some success in getting some of these to work with the Qubide although they have been older ones that I have removed from laptops when upgrading them to larger capacity drives. They are often quieter and faster than the 3.5" drives even though their spin speed is slower. My MinisQL uses a small laptop drive.

I think this magazine would be interested to hear from anyone who is using a modern disk drive with an Aurora and what makes and models do work. Publishing a list like that would be very useful to other people.
It is hard to work out how many Qubides are still in use. I do get a few requests for upgrades to the ROM (Thank you, by the way, to those people who returned their ROM and GAL chips to me after my appeal in this column a while ago.) There is a certain die hard, dogged, persistence to some QL Users and many want to use native hardware whenever possible. Even substituting an Aurora board would be considered to be not the 'done thing'. This was an attitude that was very prevalent some time back although it does seem to have taken a back seat now we have some excellent emulations available to us.

QL in a Suitcase

Speaking of emulators, I was amazed to get a request for a copy of QPC2 from Roger Goldley. Roger was one of my earliest contacts in the QL community since I tended to use my QL pretty much as it was for the first 5 years of ownership. This was mostly because the peripherals, however tempting, cost a small fortune so I had to forgo the pleasures of extra memory and a dedicated colour monitor until second user parts became available. Roger had always eschewed the use of emulations because he was concerned with processes that worked on the CPU itself. However, he came to realise that he could allocate more memory and hard drive space by running stuff on QPC2 and when he suddenly saw that, because it would run using the native PC clock speed he was sold on the idea of getting his assembly work done in super fast time. I have no doubt, though, that most of his work will still be on his wonderful hybrid, mutated QLs.
He is the David Croneburg of the QL. He usually visits us at some point during the summer time (unfortunately we missed each other this year when he was over from Spain) and presents me with some new build or other. Two QLs welded together or some other strange construct. When we first corresponded it was about the concept of a portable QL. We were both keen on the idea of having a QL you could carry around with you and we discussed ways of building a 'QL laptop'. His technical knowledge was much more advanced than mine (not hard really) and, in his letter I see that I missed the fruition of his earlier idea. He writes 'I have FINALLY come up with the Portable LCD screen QL that we talked about in 199mumble. I have just built a second one in a CD-ROM black case'.
I have tried to get Roger to write about his QL hybrids for this magazine for some time - now I really feel it is time that he should do that. Especially if he could provide photographs of his creations.

QL is 21

If all goes according to plan you should be reading this at the QL is 21 event, or for those of you who could not make it there, at some point just after. I suppose it is a remarkable thing that a computer that started life 21 years ago with its Operating System on a dongle on the side and some very adverse press coverage should still be around. I have said before that we do tend to live in a bubble and, when I attended the show in Norwich a while back I realised that other systems still have their adherents and devotees but it is somewhat strange that the QL itself has none of the major attractions that have kept some machines alive. For the Spectrum it was a wealth of strange games and the Atari was a favourite with musicians for its Cubase software. I am not sufficiently attuned to the other systems to know which are still in use and supported but maybe it would be a useful exercise to find out.
There will be the usual questions asked at the show about the 'Future of the QL' but I suspect it will be fairly meaningless. In the end our survival is in the the hands of the users, the members of Quanta and the readers of this magazine, and it is up to them what happens to it. In some ways we have a tendency not to shout loudly enough and cheer the innovators in the community (although I have tried, over the years, in this column to celebrate the best in the 'Honourable Mentions in Despatches' section). There are some people, without whom, we would have folded long ago and we should cherish these people and make them realise how appreciated they are.
It is an odd little system and we sometimes have prosaic demands of it. We should be pushing its boundaries but somehow we don't do that. People ask for QL internet access but there is no way that the QL could ever compete as an Internet experience with a Windows PC, MAC or LINUX system. Email, maybe, but web browsing would be a real challenge (go on prove me wrong!). On the other hand the system lends itself to small useful programs. The colour drivers and work on changing the system to cope with all the new facilities have made it a real delight to

use and look at. QDT has been a joy to use, (especially since I watched it through its development) and is my system of choice for a front end. Let us hope that the next 21 years will be as interesting.

Last word

One last word and little smirk for those wonderful people at Dell. One piece of technological progress I have mentioned in these pages before is the demise of the floppy drive. Long seen as a white elephant by the PC world and scorned by many users it has gradually been phased out. Sometimes when I build PCs I offer to add a floppy and get told 'What for? I have no use for this'.

Well Dell made a high end blade server. Costs a fortune and comes without a floppy drive. The users, who called us up at work in some kind of panic today, had to reinstall the Operating System (Windows 2003 Small Business Server). Not a problem you may think since this is on a CD. But the server is running a Raid array (where you have two or more disks mirroring and/or striping the data for security and speed). During the install process Windows asks you to 'Press F6 if you need to install a third party driver' (i.e. the driver for a SCSI or RAID system. With me so far? All seems fine until you get further down the line and Windows asks for the driver for the third party system. 'Insert a floppy containing.....' Er, how? There is no option to run from a CD, no way out other than inserting a floppy disk and you have no floppy disk drive and, even worse, no interface on the board to connect one. If you don't put it in the system cannot see a drive and aborts.

Now this is a problem both with the Dell designers and with those wonderful people at Microsoft both of whom should have seen it coming but it does make you chuckle does it not?

One of those cases when technology overtakes itself in the fast lane and, while making rude gestures at its slower, plodding self over its shoulder, crashes into a solid brick wall.

Happy New Year...?

by Jochen Merz

Right - here we are with another issue of QL Today. 3 1/2 months have passed by since the last issue was released, and I had problems filling this issue. Was it summer-time related? Maybe not, it is already near the end of October.

Yesterday I was wondering how I would fill in the last half remaining page? X-mas and New Year wishes? A bit early for Christmas, but on the other hand, I cannot see me having another issue ready in less than two months time ... unless a miracle happens.

So, how about you working on that Miracle?

Please provide any material for the next issue by **November, 26th**, at the very latest.

I am still waiting for some material which was promised but has not arrived for in time for this issue. Still it will make a good start next issue - if it arrives (hint).

In case the miracle does not become reality: what would you prefer?

Having a 30-40 pages issue more or less in time, or rather wait another month and get a thicker issue?

Please let us know: **QLtoday@J-M-S.com**

To help you to decide: The postage for a 40 page or 60 page issue is the same, so I would prefer sending as much information as possible.

We do not collect News at the beginning of the production of QL Today, we collect them in the middle and at the end, to ensure you are as up-to-date as possible.

As we have no show-dates before March (Sjef just gave me the next show date for Eindhoven: 25th of March) I can not combine the release of the next issue with another show - March would be a bit too late (I hope).

My preference would therefore be: let's work together on having a Christmas/New Year issue - I am prepared for it, but I need your articles, your feedback, your tests, your reports.

If it becomes obvious that no issue will be ready in time, I will send it as soon as it is filled in a way you have some to expect from QL Today. It will then be sent in January or early February .... and plan to have next issue ready at Eindhoven or a UK show next year - in April, maybe?

Let's hope for a miracle... and in case it does not happen:

The QL Today team wishes you Merry Christmas and all the best for 2006!

The QL Show Agenda

Many of you may be wondering why the US show, planned for early October, was cancelled so late.

It was being organised by Al Boehm. He found a hotel near Boston, and an announcement was made earlier this year. Unfortunately he had the great misfortune to have a serious stroke. This left him wheelchair bound, and we were naturally reluctant to raise the matter of the show. The good news is that he is now able to put aside the wheelchair, and is continuing to recover. He said he was really keen to make the show happen.

I tried to contact the hotel that he had arranged, but unfortunately it seems in the meantime to have gone out of business.

Bill Cable reluctantly decided a few weeks ago that the show had to be postponed. Even if we could find an alternative venue, it was unlikely we would be able to inform visitors in time.

It is hoped that a show can be organised for March/April next year - watch this space.

We wish Al a continued recovery from his awful experience this year.

We are near the end of the year - a time when most of the year's shows have been held, but plans have still to be made for the coming year's shows.

This year there have been relatively few shows with just three in the UK and three in the Netherlands. Plans for a North American show had to be abandoned, partly because of the illness of Al Boehm.

Two of the Netherlands shows were local and the third international. Attendance at the international show was reasonable, although, disappointingly, there was no great interest for presentations or activities. Once again we ended the day socially in the New Canton restaurant.

Quanta had a well attended show and AGM at Hove, but Byfleet in September disappointed. Perhaps it was held too near the big Portsmouth QL is 21 show. This issue of QL Today will be released at Portsmouth, and we hope this show will be as successful as QL2004 was last year. However in the last few weeks before the show Quanta had concerns over the low number of hotel and dinner bookings.

North America may organise a show in the Boston area in Spring 2006 and Quanta has provisionally chosen the weekend of 8th/9th April for its 2006 AGM at a yet to be determined location in the North of England. This is a date for your diary.

The Hove Show is in the planning stage.

This time last year QL Today posed several questions about shows:

Do you want any more QL meetings?

Do they serve any useful purpose or should we stop them?

Do you want one major yearly event? If so, where?

What time suits you best?

Is this lack of attendance purely the result of a lack of new products?

All these questions are still relevant today, with the possible exception of the last. 2005 has been the best year for new software products for some considerable time.